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No. 3

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Rupert Downes Memorial Lecture.¹

THE FOLLOWING WIND OF HISTORY.

By ALLAN S. WALKER, M.D., F.R.A.C.P.,
Sydney.

At every moment of existence we are moving between the past and future, fluttering our puny wings to meet the dawn. Youth is all too prodigal of the power of the gust which heralds each moving day, but the elders of our human tribes are wiser. They bid us to look also at the past, and to count it time gained to set our course so that we are buoyed by a gentler, steadier wind blowing towards the countless dawns ahead. There is, as the English poet W. H. Auden reminds us,

Always the following wind of history
Of others' wisdom, making a buoyant air.

It is a truism to say that medicine as a science is becoming more complex every day, and more and more difficult to practise as an art. And how much more difficult it is in a national emergency. Let us imagine a sudden turning upside down of a community life; a beating of

ploughshares into swords; a supplanting of national humanism (if there is such a concept) by violence. And let us imagine the retention of one social class to mitigate the rigours of the physical and mental hardships thus wilfully created. There we have the task and environment of the medical corps in war. Further, let us imagine the uphill task of the head of this service during the heedless days of peace, when few realize the problems of supplying and using the modern resources of medicine, particularly of surgery, in a dugout in a desert, or a hut hacked out of the jungle. Let us be thankful for the calibre of the men who with characteristic Australian vigour and capacity have saved lives by their apt extemporizations, and for their leaders who prepared and planned. Is it strange that these leaders should be historically minded and look to the past to gain guidance and help in the future unknown trials? In 1939, during those ominous days before the war, the burden of peacetime planning for the army medical services fell chiefly on the director-general, a man sensitive to the following wind of history, as we shall see. He it is whom we commemorate tonight, the late Major-General R. M. Downes.

I feel it is a high honour to deliver this lecture in his memory, and to follow the first Rupert Downes Memorial lecturer, Sir Samuel Burston, who was well fitted for the task of gathering together the past and the future with the life of a man who did so much for the cause he loved.

It is apposite here to remind you that the tradition of historical learning is maintained by the present Director-

¹The substance of the second Rupert Downes Memorial Lecture, delivered on March 31, 1954, at The Royal Australasian College of Physicians, Sydney.

General of Medical Services, Major-General F. Kingsley Norris.

First I wish briefly to call attention to those aspects of military medicine which particularly interested Downes as Director-General of Medical Services, and to point out the importance of relating these to the wisdom and experience of those who went before.

General Burston's compact biographical account of General Downes could not be bettered. He pointed out the early experience of Downes as a medical administrator, especially when, as Deputy Director of Medical Services of the Desert Mounted Corps, he, with his fellows in that famous formation, became one of the makers of history. As Deputy Director of Medical Services of Southern Command, by keen interest and training he did much to lay the foundations of the high reputation gained by the senior officers of the Australian Army Medical Corps in World War II. Back in civil life he became a writer of history and contributed Part II of Volume I of the "Official History of the Australian Army Medical Services", which dealt with the Palestine campaign. In 1933, while on a visit abroad, he spent much of his time in studying details of military medical methods and equipment. When Major-General Barber retired from the post of Director-General of Medical Services, Downes was the logical choice and, thus buoyed upwards and onwards in his military career, he spent the remainder of his active professional life as a permanent soldier.

To his knowledge of military medicine he added erudition in military history, and his most pointed and forceful writings were those which appealed to the muse of history as a teacher and a guide. He turned his flair for history to good purpose; and since devoting the latter phase of my own professional life to the compilation of the medical history of the 1939-1945 war, I have come to look on my distinguished predecessor, who lost his life while in the performance of historical research, as a model diarist. Only the writer of history can appreciate justly the value of the compiler of full and accurate notes and reports, especially when they are salted with those comments and views which make history live. Even now the detailed diaries of Downes when Director-General of Medical Services and his reports when Inspector-General of Medical Services are interesting, full and valuable.

In March, 1938, eighteen months before the outbreak of the Second World War, he delivered the Anne MacKenzie Oration on "The Medical Aspects of Military Science". In this he spoke of the principles of preventive medicine in war as his Holy Grail, and made an appeal to the poet, beginning with the dawning of war surgery with Imhotep. I remind you that a statue bust of this surgeon of the Pharaohs stands before Gloucester House at the Royal Prince Alfred Hospital. In this address he gave pride of place to the prevalence and prevention of disease in armed forces, and in particular to the importance of fitness to a nation at peace or during war. Some Press publicity was given to the subject, and General Sir Harry Chauvel criticized the poor physique of volunteers in a march during the King's Parade, though army officers pointed out that they were but slender and undeveloped youths who would respond to physical training. This has an interesting echo in the Owen Stanley campaign, when one commanding officer said to another when referring to the sick and wounded of a militia unit: "They look like children to me." Later, after the outbreak of war, Downes was anxious over the arrangements for examination of recruits. He said: "In the period of rush enlistment far more recruits were examined by individual medical officers than was possible for effective decision. The examinations also were not done under proper circumstances." No doubt he had in mind the forthright views of Sir Neville Howse about recruiting standards in the 1914-1918 war. Since those days much attention has been paid to more accurate methods of examining the body and mind of the soldier, and, indeed, of members of the civil community. The continuously growing interest taken in the physical and social welfare of the young is encouraging; we should trim our sails to the winds not of chance, but of wisdom.

The value of those innovations of preventive medicine, for which we have Downes and his staff to thank, is of course well known: miniature fluorography, determination and record of blood groups, and the extension of inoculation to include tetanus had far-reaching results. It is interesting that Downes was keen to introduce a multiple or "cocktail" vaccine for army use; technical difficulties caused delay at that time, but now the device is well established.

Finally we must recall the live interest taken by Downes in the British Medical Association, the Australian Red Cross Society and the Order of Saint John, and the part he played in the coordination of the medical profession, the control of medical equipment, and the building of military hospitals. That a highly efficient organization to control medical manpower and medical equipment should be ready at the outbreak of war was a tribute to the foresight of those who formed and implemented the plans. The thorny problem of the base hospitals need not be further discussed here, save to remind you that decision was delayed for nearly two years, until Sir Percy Spender, then Minister for the Army, pressed for an answer. Downes, who remained true to his principles, had even picked the site at Heidelberg himself, and when asked the direct question if these hospitals were necessary, he hesitated for only a moment before assuming the responsibility of replying "yes". There is no longer any question that the correct decision was made, and Australia was provided with additional hospital accommodation which was greatly needed. Fortunately Australia was never faced with the problem of providing extensive hospital facilities for the civilian population, for they were never in the front line as in Britain. The Emergency Medical Services in Australia had little occasion to pass beyond the stage of planning and organization.

I am well aware that I have touched only very sketchily on a number of important subjects, which deal with the controls necessary for the organization of medical manpower and material during the war. Looking back, we realize that we were fortunate in those in whom we could place our professional trust; it is just that we should remember these matters not merely because they are part of the history of a man and a period, but because they are surely leading us somewhere.

We all have a share in the navigation of the ship of State; perhaps it does not seem a very important share, but it is not negligible, and we should take an intelligent and if possible unclouded view of the landscape of time as it unrolls before our perhaps incredulous eyes. The medical preparations for war demand concerted action; yet this in the end is based on the mutual relations of two men, a doctor and a patient. These elaborate organizations of a country at war do not vanish with the dawn of peace, and having assented to joint action for the nation's sake we often find this presages an irksome loss of individual freedom, lasting into and beyond the days of reconstruction.

In our own field some form of corporate medicine is inevitable in the modern State. The connexion between the past and present is illustrated in the recently published second volume of the medical series of the United Kingdom war history. In this volume the editor, Lieutenant-Colonel C. L. Dunn, points out that the Emergency Medical Services in England, Wales, Scotland and Northern Ireland paved the way for some of the special facilities provided more generously by the National Health Services since 1938. The reviewer in the *British Medical Journal* (September 19, 1953) lays stress on the great value of the welding process which has gone on, making a compact organization of a collection of separate hospitals, and yet allowing its components a reasonable degree of independence.

There is a great gulf between collective and individual forms of medical practice; but somewhere between the two seems to lie a practical solution that can retain the best we have and give something better in service. To find such an answer we must examine present trends of science in relation to humanism. In this field, too, the

one-time future has become the past. Let us not run the risk of being becalmed or stranded on an inhospitable shore while there are "good knots for nothing" in the breeze that blows from the known to the unknown.

Now with some temerity I venture to turn from generalities to a subject which is not only surgical but restricted by the exigencies of war, and illustrates not only an intimate form of the doctor-patient relationship, but questions of both surgical and military principle and practice. The subject of the first Rupert Downes Memorial Lecture was the mass destruction wrought by the atomic bomb. I wish to take you to the other extreme: to the individual reconstruction of forward surgery. I shall deal briefly with a number of loosely related aspects: technical questions I can but touch upon, but direct your attention rather to the circumstances in which this work was done and the evolutionary changes which the future may bring. While we all hope we shall never see another war, we must be realistic, and we may, too, feel something of the stir of enthusiasm in youth and evoke the selfless spirit of the best exemplars of our profession.

FORWARD SURGERY.

There is perhaps a tendency in thinking or speaking about surgery of the forward areas to regard it as simply consisting of emergency procedures designed to save life and preserve bodily structure and function. To a certain extent this is true, but this concept is not complete unless the work done is viewed against its background. Action here is determined not only by the canons of standard surgical practice, but also by other important considerations, such as the type of country and the military situation. History teaches us that many wars have been fought over the most hostile terrains with which Nature can confront troops. In the tropical areas to the north of Australia and the South-West Pacific area this was certainly so.

In the 1939-1945 war surgical teams have had to work on ships in action, in trackless desert, in heat and cold, isolated by distance and enveloped by a biblical cloud of swirling sand by day, but with no fiery counterpart by night. Mountain heights beset by rocks or covered with snow have imposed further obstacles, and, most formidable of all, humid heat, moss forests, dense jungle, swamps and endless mud, and swift and often flooded streams were characteristic features of the country in which the troops fought in the tropics and the doctors laboured to lessen the havoc of war. Many vivid descriptions of these trials have been given, but there are still other items which must not be forgotten. To the commander, the medical administrator and the surgeon the question of time is all important. "How far is it?" means "How long does it take to cover the distance?" They think in terms of the injured man, and in the sitting of a forward post the concept of space-time is essential, a kind of surgical relativity.

We shall presently touch on some of these problems of evacuation of the sick and wounded—whom to hold, and whom to send on. A sweeping question may be asked, such as "How far up should the forward surgical posts be?" but it can be answered only by study of individual medical care and medical logistics. Even to answer in terms of distance would of itself mean little. Further problems may be added to those necessary for the solution of this complex equation: "How quickly can a post be established or moved, and how near is the enemy in point of time?" Upon the answers to these questions will also depend to some extent the surgical scope of the work undertaken; further, a catalogue of the procedures carried out by a surgical team may mean little unless it is correlated with space-time and the availability of supplies.

Transport and Surgery.

Obviously transport is a vital though often complicated factor, even in civil needs of medicine and surgery. Many transport troubles assailed the Australian Army Medical Corps in its many assignments on various fronts, but the greatest of these were met in the Pacific islands.

Fortunately transport of the sick has now taken on a third dimension, that of the air. Probably the best known of all forms of transport of casualties in New Guinea and similar campaign areas is stretcher carriage by hand. It is only fair to add that in appreciating the splendid patient work of the native bearer teams we must also give high praise to the unit stretcher bearers, who made many difficult and perilous carries of wounded back to the aid posts. In some of the roughest types of terrain the difficulties were colossal. Imagine the trials of the wounded in the 2/12th Battalion during the action on Shaggy Ridge. Here the infantrymen had to use ropes and vines to move over the steepest parts, and then at one time covered only nine miles in three days, while the men of the 2/5th Field Ambulance sometimes could pull themselves up over the cliffs and declivities only by using ropes.

The sick and wounded owed a great deal to the native bearers, and they in turn were indebted to the Angau organization, which looked after their well-being and nutrition. The problem was magnified in difficult country; usually eight to ten bearers were needed, but sometimes 12 to 14 bearers were required for a single stretcher. Dependence of medical units on bearers for supplies was somewhat precarious; air dropping conferred a great benefit, even though the wastage rate was high in some areas. The surgeon had peculiar difficulties in caring for wounded who arrived after a long carry, often at an hour when the theatre teams were worn out. The scene as it appeared to a tired surgeon is well described by Major D. Leslie on the Owen Stanley Range:

I can recall now the dreadful feeling when, towards the end of a continuous operating session, we would look up and see a dismal line of natives bringing litter after litter of badly wounded patients through the swamp in the drizzling rain of evening. And so on, day after day.

The particular poignancy of the medical situation was that many of these patients could not be sent back to base, but had to be held till the further problems of return transport were solved or till their recovery reached the point when they could go back on foot along the trail. It should be noted that the team worked with a dentist who was a competent anaesthetist, and for a period of about a week had only two orderlies, and used an equipment comprising 12 artery forceps, two scalpels, two pairs of scissors and a "Primus" stove.

Wheeled vehicles and provision for keeping them in good order bring us into a more civilized state of affairs. They are necessary requirements for the work of the medical services, and in Australia we must look to industry to provide this supreme essential for defence. Of course a vehicle presupposes a road, or at least a track, if it is to be of use. Careful navigation and driving carried many wounded to safety in the Western Desert, but in some parts of the islands, such as the northern littoral of New Guinea, roads were virtually non-existent when the campaign of Aitape began, and the streams when flooded could not be crossed by vehicles. Bridges disintegrated and rivers altered their courses as if perversely adding to the difficulties. Medical posts were sometimes virtually cut off, but nevertheless they continued to give service in emergency.

On Bougainville the Australian force was adequate and well equipped, but owing to continuous bad weather during the final phases was unable to maintain its ideal plan of following up the southern advance with a three-ton road and a corduroy jeep track. Indeed, just before the capitulation of the enemy the whole campaign was temporarily in suspense because of relentless rain.

Water transport, as in other of the 1944-1945 campaigns, when it was available, was here of great help, but had its problems. Even if suitable craft were to hand, landing places were not always convenient, and arrangements for holding patients in transit were often necessary. These problems reflected back on the policy of aid posts equipped for surgical work and for holding patients. Post-operative care had its anxious moments too, and the duration of the sea journey was more important than its distance.

It is perhaps worth mentioning that in January, 1944, certain forward medical units had their holding capacity badly strained by the high incidence of malaria. Barges plying to Finschhafen could not readily relieve this strain, as their possible range was shortened by fuel requirements and adverse head winds; but fortunately a hoped-for seasonal change in the weather arrived, bringing with it a following wind, in this instance in the literal sense. This friendly breeze then helped three ketches to transport over 50 patients in safety.

Hospital ships could serve only areas appropriate from the navigational and military points of view; but their admirable facilities as floating hospitals lifted many of the anxieties of surgeons working in forward bases.

Air transport, particularly over the longer distances, was in most ways ideal. There were, of course, difficulties of organization. Close supervision was imperative so that only suitable patients were allowed to travel by air, and facilities were necessary for care during the inevitable delays in flying, especially in a country like New Guinea, where flying was difficult in times of peace, let alone during war. These considerations had to be always in the mind of the forward surgeon and, of course, of the physician too. It was necessary not only that the kind of treatment a patient would need in an advanced dressing station *en route* should be understood, but also that the facilities for giving it should be arranged. The size and type of aircraft used introduced another important factor. This was well illustrated in medical evacuations from the inland sector of the Aitape-Wewak operations. First no flying was possible, and the outward route for patients was a tortuous and long trek by land; then small aircraft like "Austers" arrived, and finally the standard "Douglas" freight-carrying planes and suitable strips were available, greatly appreciated by both surgeons and patients.

Problems of organization for civilian air transport of the sick and injured have already assumed importance on the mainland of Australia, and in a large country like this such organization may at any time be a necessary part of the care of emergencies. Already these features of country practice might well receive more attention in clinical teaching. War practice can help civil medicine and surgery even in transport. We have given some attention to the questions of transport and other external circumstances; but before making any further generalizations let us take an extreme example of an evacuation route which seems fantastic, but proved possible and useful.

During the latter stages of the Wau-Mubo-Salamaua campaign the "Battles for the Ridges" were really a turning point in the land operations against the Japanese. The military situation demanded the erection of advanced dressing stations in places often difficult of access and distant from medical bases. One advanced dressing station, known as "Kelly's", had humble beginnings; but in August, 1943, it had 120 beds and a staff of two surgeons, two medical officers, one dental officer and 35 other ranks.

Let us follow in spirit sick and wounded passing from "A.D.S. Kelly" on their way to Moresby. After breakfast a cavalcade of native bearers, 12 to each litter, waded for an hour along the knee-deep waters of the Yuliap River and then scaled the steep track to Dierke, where the sick were fed and cared for till morning in an ambulance post. Patients too ill to continue could be left at another advanced dressing station, but the others were carried on for three or four hours over a steep and slippery track and rested again for the night. On again on the third day, their bearers clambered up another steep track to a fair road to the coast at Tambu Bay. After dark the patients were taken to a safe dugout till barges arrived, and loading in the dark the boats sailed for Nassau Bay. Here a medical officer was available, and orderlies gave the men hot drinks and necessary attention at a staging post on the beach. Barges took them on to Morobe early next morning and landed the sick, who were taken by ambulance wagon to an advanced dressing station run by one of these useful subdivided sections of a field ambulance. Here men could be left if they needed further rest, and

those needing surgical care were taken to a casualty clearing station there, while the remainder waited till dusk for a barge or other craft to take them on to land at Oro Bay next morning. On the fifth day ambulance cars took the patients to the main dressing station of the 10th Field Ambulance; after being cared for and fed, most of the men were well enough to travel to Dobadura, an air forward base, where they were fed and slept at an advanced dressing station. Early on the sixth day they were taken to the airstrip, and after periods of unavoidable waiting they flew the final stage over the Owen Stanley Range to Moresby, where waiting ambulances took them to a general hospital. Surgical or medical necessity might even then dictate a further final journey to the mainland by sea ambulance transport or hospital ship or by aeroplane. While recognizing that sick men were more numerous in these convoys than wounded, cast your minds back to the surgeons in the aid posts on the ridges and to the organizers who maintained so remarkable a network. It seems impossible, yet history assures us that it was done. Do not the words "forward surgery" take on a different connotation?

Consultants.

This is perhaps an appropriate time to mention the great value of consultants. Forward surgery is performed under conditions of relative isolation, and the value of discussion with and assistance from another colleague is very great, particularly if he is one of ripe experience and has facilities for free movement. The Australian Army was fortunate in its director of surgery, the late Brigadier W. A. Hailes, and Colonel C. W. B. Littlejohn's help and guidance as consulting surgeon were invaluable to all responsible for surgical treatment, from the heads of surgical teams to those important men, the regimental medical officers. The influence of Brigadier Sir Neil Hamilton Fairley diffused far and wide among both physicians and surgeons on all fronts. Regional consultation was also usually possible with the senior medical officer of a formation, such as a brigade or smaller force. Time showed, too, that two surgeons in a team formed an ideal combination if one was senior in age and experience. It was also found of the highest value for the forward surgeon to have some opportunity, perhaps at a later date, of seeing the results of his work. This was a feature of much of the surgical work of the Australian Imperial Force, and the tradition was spread more widely as time went on.

It is not irrelevant to point out here that a senior practitioner in the role of consultant in civil life has a responsibility in this matter. One of the important functions of a consultant or specialist is that he diffuses his knowledge among those of his colleagues who seek the assistance of the hospital or clinic he serves. This is not an easy administrative problem to solve in hospitals, but surely it is possible with cooperation from all concerned. It is bad for medicine, bad for its exponents, and bad for the subjects of its care that this link in the chain of diagnosis and treatment should be lacking, as sometimes it is.

Changing Principles in Field Surgery.

These experiences show that jungle warfare imposes new principles, which must guide both administrator and surgeon. Collection and transport of casualties are still preeminent duties of a field ambulance, but work in this exceedingly difficult country imposes on the ambulance a growing burden of treatment. Colonel W. D. Refshauge, in a report on the Mubo-Salamaua actions, said that "every hour nearer to the R.A.P. counts in certain war wounds". This presupposes that the obligation of treating and holding wounded is accepted as a special feature of the jungle field ambulance. Safety is a relative term in modern warfare. Perhaps it means less than it ever did; but such security as can be offered is necessary for the peace of mind of patients, and for the detached calm of the unit staff. Yet movement was difficult, both on the mountainous heavily timbered slopes and in the valleys, with their winding streams, difficult to both friend and

foe; it was practical to bring teams up to the aid posts, saving time, saving manpower in bearers, and saving disability for wounded men.

It meant, of course, more material and equipment; these had to be brought by bearers, or dropped from the air, or cut from the jungle. Resuscitation called for ample resource, an autoclave was necessary, as experience in the desert showed, and correct packaging was essential, an oft-repeated lesson. What further responsibilities may be given to forward medical units cannot be forecast: the future may lie partly with development of transport or with the introduction of new products of the pharmacologist. Modern anaesthesia has taken us far; are there further possibilities in other means of control of the nervous system, such as artificial hibernation or other forms of so-called controlled metabolism? Who knows?

A question of organization arises here. If the isolation imposed by mountains, forest or flooded rivers is utilized in the siting of surgical aid posts, will not the position arise in which a main dressing station or an advanced dressing station will become hopelessly crowded, with no fairy godmother to provide a way out by land, air or sea? What, then, is the upper limit, even supposing that most of the casualties are of the milder medical variety? It is a nice text-book question which I shall not try to answer, but must refer to the remarkable record established while the 7th Division of the Australian Imperial Force was in the Ramu Valley. No less than six senior medical officers of the division had personal experience of holding numbers far in excess of the usual normal, without adequate facilities. The 2/6th Field Ambulance, while under command of the late Lieutenant-Colonel R. J. Humphrey, was warned that the unit might have to hold 500 patients as a temporary measure, but far surpassed this. On October 28, 1943, there were 805 patients in the main dressing station, which meant that breakfast had to be found for 1000 men. This seemingly impossible task was actually performed. We must admit that here our following wind becomes a brisk breeze.

Fortunately the quoted examples of accommodation and evacuation are to be regarded only as extremes which merely illustrate the elasticity of field medical units. We may briefly keep closer to our text and illustrate some of the exceedingly difficult conditions in which surgeons have to work.

Amphibious and combined operations offer military prizes to the tactician; but their complicated time-table and the unexpected swings of weather or accident or fate may create uneasy situations.

Amphibious Landings.

Some of the circumstances which cause difficulties reacting upon forward surgical work may be controlled; others are concerned with events or decisions quite outside the ambit of the chief actors.

During the Huon Peninsula beach landings a surgical team under Major G. Newman Morris, attached to the 2/8th Field Ambulance, was exposed to enemy resistance and the advanced dressing stations landed under fire. The medical area was soon surrounded by other military installations. Fifty-three casualties needed attention, and transfusions were perforce carried out in the open with bottles hanging on trees. Most of the wounded were promptly cleared from the jungle fringes of the beach, but the seriously wounded had still to be held on the following day. During the next few days the main dressing station area was bombed; moving the main dressing station was impracticable, but an advanced dressing station of the 2/11th Ambulance acted as evacuation centre. Some of these troubles arose through matters of policy. Air protection was limited by diversion of the main air forces to other areas; large landing sea craft were wanted for New Britain operations and were very scarce. Circumstances did not favour malaria control, and the incidence of malaria increased. Later the Japanese made a counter-attack and threatened the safety of the medical area, where a light section of a casualty clearing station and a main dressing station were working. A tent ward

collapsed in the heavy rain and the overcrowded remaining wards suffered bursts of gunfire. Unit members armed to protect the patients, who were only thinly ringed by their defenders; but some hours later the arrival of two mortar shells made evacuation the only safe course. Patients were carried to the beach by hand and safely taken by barge to the main body of the casualty clearing station. Several hours afterwards the patients were all in relative safety. It may be noted that the earlier decision to hold the more seriously wounded patients proved in the end to be a counsel of wisdom.

An even more harassing experience befell surgical teams in the Tarakan landing in North Borneo. The 2/11th Field Ambulance landed on a congested beach. One section was involved in difficulties on the beach and could not land. Decision was made to evacuate all casualties to land-sea transports with the surgical teams, but there was heavy enemy opposition, and only those unable to be held at the beach main dressing station could be moved. In the next couple of days shells fell close to the unit and there was heavy fighting in the vicinity, causing numbers of casualties, collected with great difficulty. On the night of the fourth day the enemy were only 200 yards distant. The unit diarist commented "no M.D.S. could be nearer the front line", but there was no alternative. The surgeons went on working, but were often interrupted by the breaking of power lines by small arms fire. Evacuation was extremely difficult; all roads were dangerous. On the tenth day the main dressing station ceased to take patients; the 110th casualty clearing station was then better situated for this task. The position improved, and after a couple of weeks the action had died down and the Japanese withdrew; a hospital ship arrived and embarked all the casualties. Such conditions demand not only resource and coolness, but keen judgement as to the wisest technical action.

Surgery in Isolation.

Another example of the influence of local terrain and the hardships suffered by a temporarily isolated force may be drawn from the closing phases of the drive on Sattelberg and Wareo by the 24th Brigade. An important point in the Japanese lines of communication was cut by the taking of Pabu Ridge by the 2/32nd Battalion, and in reply the enemy cut the battalion supply line.

There were many seriously wounded men needing attention, including those with injuries such as compound fractures, multiple splinter wounds from shrapnel, "sucking" chest wounds, and two cases of gas gangrene. Water was limited and its source was 1000 yards from the medical posts. Fortunately a detachment of the 2/3rd Field Ambulance was under command; this provided more medical help, and stretcher-bearers from the ambulance supplemented the four regimental stretcher-bearers. The regimental aid post and advanced dressing station were sited alongside one another, but the shelter available was quite inadequate; the regimental aid post was in a shallow trench when shelling began, and the advanced dressing station was only a rough shelter.

On the second night the enemy opened artillery fire at point-blank range, causing many more casualties.

These attacks continued for ten days, increasing the numbers of the wounded. A direct hit destroyed the regimental aid post and killed an ambulance bearer. Some supplies were dropped from the air, but with the meagre equipment at hand only makeshift methods were possible. Evacuation of casualties was hazardous and difficult, and it was thought inadvisable in policy to expose native bearer teams to undue risks. Next day, after a safe line of communication was established, a battalion party carried out a number of wounded and returned safely. Further capture of high ground made it possible to send out more wounded, and native bearers could once more be used.

The attachment of an ambulance section to the battalion post was most helpful to the regimental medical officer and the sick and wounded, but the lack of shelter was a great handicap. Had it been possible to increase the safety of the combined aid posts at an early period, more

efficient surgical first aid could have been given, though medical supplies were scanty, and even water supplies were meagre. This episode demonstrates on what slender fundamental support the possibility of surgical assistance rests.

Control of Infection.

Review of the surgical history of the first and second Australian Imperial Forces emphasizes the immense benefits conferred by the various methods evolved of controlling infection of wounds, especially compound fractures of extremities. They are well known and need not be traversed here. Perhaps the voice of history was not heard as clearly as might be in 1940, and surgeons of that generation did not always realize that excision with delayed primary suture was demonstrated as possible in 1918. We know too, that the Western Desert was cleaner than it looked, and that the Pacific islands were a sterner proving ground for surgical methods. Even apart from the advantages of sulphonamides, study of such considerations as climate, of terrain, of the bacterial content of soil, of transport facilities, of blood transfusion, and routines and refinements in surgical technique contributed greatly to improvement in the control of infection. Then came the impact of penicillin, conferring freedom on the surgeon as well as on the patient.

Excision, so-called, of wounds took its rightful place, though it was not always as simple as it looked; like all surgical procedures it needed judgement—not too much, not too little. For every pair of deft hands in this room there must be, and I am sure there is, a calm brain holding a just balance over the movement of those hands.

Then there were the worries of malaria in a wounded man and the problems of blood transfusion. Realism soon taught that in hyperendemic areas every man should be treated for malaria in his post-operative period.

A more serious matter was immobilization of fractures, especially compound fractures, in wounded men who had either to be held in the area or subjected to an often hazardous, that is, surgically hazardous, evacuation route. You will recall the arguments for and against the so-called Tobruk plaster, which owed much of its excellence to good facilities and expert handling. Again, though plaster was practicable and valuable at Myola on the Owen Stanley Range a cool 6000 feet above sea level, it was soggy and slow of drying in the humid heat of the valleys. Moreover, a native boy could carry plaster for only two spicas, but he could carry seven Thomas splints.

But, with all improvements, more than half-way through the war there were still seen in base hospitals patients with infected fractures imperfectly controlled by plaster. This was not a representative picture, of course, even if it was before the penicillin era, nor is it necessary here to speak of the measures of relief. It needs only superficial reference to the past to emphasize that such risks are not yet extinct; but it is fair to point out that surgeons in the last year of the war were successfully closing with the aid of penicillin wounds involving bones, without sepsis.

Of course there are still questions to be posed. If a medical armchair theorist in 1945 had indulged in speculation on war wounds, could he have foreseen that the overwhelming and natural urge of doctors to use penicillin would cause also increasing sensitivity in some patients and would encourage the uprising of resistant strains of bacteria? He should have foreseen it, for Nature seems to be too scrupulously fair towards all forms of life, and loads the scales against the loftiness of man as surely as against the staphylococcus. History warns us that the surgical scene is constantly changing. What sets of instructions could be drawn up for surgical teams today that would not need revision after tests in the field? This warning may also be necessary in the sphere of civil practice of surgery.

Nevertheless something is to be said for routines; if not too restrictive, they are economical and set a standard. This may be illustrated by blood transfusions. The scheme drawn up by Formby at El Alamein set standards by the

simple control of estimation of the blood pressure as a measure of shock. Rapid transfusions were used if necessary, and demonstrated by their success that, although a rapid intravenous infusion of blood might cause reactions, in fit young people the advantages outweighed the disadvantages. Several years later a field ambulance on Tarakan used Julian Smith's ingenious pump for direct transfusion where speed was adjudged an asset.

Looking to the End.

These disjointed examples of aspects of forward surgery have this in common, that rules should be elastic in emergency, and that results, especially statistical results, may be fallacious unless due heed is paid to the prevailing circumstances. It will, of course, be recognized that rule-of-thumb suitable under certain service conditions may not always be advisable in civil practice.

We must believe, too, that in military surgery and in those branches of traumatic surgery which are fostered in civil communities there is a close nexus with the highly specialized branches of the surgical art. The "forward surgeon" even in civil life must always look to the end; he is one of the rare men who may try with the help of his colleagues to make the best of two worlds—the present and the swiftly advancing future. In the Middle East, as elsewhere, it was found in certain fields that the forward surgeon did better to confine his attentions to the necessary minimum. For example, the patient with head injuries was best left alone merely with a sterile dressing, even if several days elapsed before he was taken back to a neurosurgical centre, unless he showed evidence of compression by covert bleeding. Similar restraint was desirable in the early stages of treatment of wounds which would later call for reconstructive surgery; for the sake of future structure and function as little tissue was sacrificed as was safe and possible.

This tenet of practice is important today, just as it is necessary that facial repair should be dealt with as early as possible by skilled hands. In other words, in a civil world in which the cult of the machine still makes us run the gauntlet of physical violence, there is still a surgeon of the forward areas, one of a team united in the common aim of return of the patient to an active and pleasant life. In fact, the environment of the modern practitioners of medicine demands constant devotion to individual care for the common good; their weapons are keener and more hazardous to handle, and they are more and more committed to bold social and medico-social experiments. For these great responsibilities no process of learning, no accretion of experience and no degree of humility can be too great.

CONCLUSION.

It is now nearly fifteen years since the flame of the latest and greatest of wars ran over the world, and perhaps we are beginning to judge with better balance at least those changes which have come in our own profession.

We have tonight commemorated a man to whom we and the armed forces owe a great deal. He devoted himself to the ideal of military medicine, and in that cause fought on, sometimes to his own detriment, for he was always firm to his principles. Dorothy Sayers puts it well when she speaks of how slowly appreciation comes of the worth of many:

For considered appreciation we must wait until many contemporaries have gone to where rumour cannot distress them, until grief and passion have died down, until emotion can be remembered in tranquillity.

Rupert Downes, at the instance of Sir Alan Newton, wrote a brief unofficial account of some of his experiences as Director-General of Medical Services; this has been available for the purposes of the medical history through the kindness of Mrs. Downes. It tells us something of the man as well as of his work. Let us take the last few sentences of this diary and allow him to write his own epitaph:

Like all life, there have been the shadows and the sun. Of all occasions we remember only the sunshine. I trust and believe that that will be my meed.

ACKNOWLEDGEMENT.

Grateful acknowledgement is made to Mr. Gavin M. Long, O.B.E., the Official War Historian, for permission to use and publish some of the material.

PREGNANCY WITH DIABETES—THE PHYSICIAN'S VIEWPOINT.¹

By F. H. HALES WILSON,
Sydney.

THERE are many interesting aspects concerning pregnancy in a diabetic.

First there come the questions which a diabetic girl may ask: "Shall I be able to have children? Are they likely to develop diabetes? Will pregnancy be risky for me? Will it make diabetes worse?"

Answering these, one would have to explain that diabetes does not usually prevent a woman from having children, but that special care is needed in pregnancy. There is some chance of the baby developing diabetes in later life, but it is not great unless the father is diabetic or has a diabetic parent.

Priscilla White, reviewing 105 children of diabetic mothers, found 11 with diabetes. When the father is also diabetic, all children are potential diabetics, whereas if he is healthy but has a diabetic parent, half his children are likely to become diabetics.

With efficient obstetrical and medical care, there is very little added risk to the mother on account of diabetes. Very rarely is the condition worse after pregnancy. However, diabetic vascular degeneration may increase during pregnancy, so that in severe diabetic retinopathy the remaining vision may be endangered.

The diagnosis of diabetes developing during pregnancy may be difficult. It is wise to investigate every case of glycosuria; most are due to a lowered renal threshold. Remember that a normal fasting blood sugar content does not exclude diabetes.

Do not make a diagnosis of diabetes if, with a normal diet, glycosuria is absent but the glucose tolerance test gives an abnormal result.

If the investigations leave one in doubt, the case is at worst one of very mild diabetes requiring slight dietary restriction and careful watching. Do not brand such a person diabetic.

Pregnancy in the diabetic differs from normal in several respects. There is an increased incidence of congenital defect and of pre-eclampsia and an increased liability to death *in utero* or in the first few days of life. The infant tends to be oversized, though needing the same care as any premature child and liable to die during labour.

The danger to the fetus is much greater if the mother has developed the vascular complications of diabetes, especially nephropathy or calcification of the pelvic arteries.

In pregnancy the placenta produces not only sex hormones but also ACTH and growth hormone, which are likely to have a profound effect on diabetes. In pregnancy with diabetes there is hormone abnormality, as evidenced by an abnormal rise in serum gonadotrophin content and low urinary pregnandiol excretion. The mechanism and the significance of these changes at present are obscure (Sommerville *et alii*, 1949; Pearlman *et alii*, 1953).

Priscilla White and her colleagues (White *et alii*, 1953; Joslin *et alii*, 1952), whose experience covers 642 cases of viable pregnancy between January, 1936, and February, 1953, have obtained the highest fetal survival rates. These they attribute in part to sex hormone therapy, in which up to 125 milligrammes each of stilboestrol and progesterone are given daily by intramuscular injection. Treatment is

controlled by estimations of serum gonadotrophin and urinary pregnandiol contents.

Whether the excellent results are due rather to superb cooperation between patient, obstetrician, physician, paediatrician and nurses remains to be proved.

The Medical Research Council in England has conducted a controlled clinical trial of hormone therapy, and I am informed that the results do not establish its value. However, we must wait till the facts are published in detail.

Hormones or no hormones, it is vitally important to have the best possible ante-natal care and diabetic treatment. This should begin before pregnancy, because poor diabetic control may be a factor in producing congenital defect.

Normal ante-natal care being outside the scope of this paper, I shall not deal with it but merely remind you of the importance of testing the Rhesus factor and carrying out the blood Wassermann test, X-ray examination of the lungs and haemoglobin estimation each two months, as well as recording weight and blood pressure and testing for albuminuria.

We now turn to consideration of the management of diabetes in pregnancy. Patients should be seen once weekly, unless they are very intelligent and the diabetes is well controlled, in which case the interval may be two weeks till the twenty-eighth week and thereafter one week.

The diet should be adequate for the needs of pregnancy and its Calories suited to the patient's weight; it has been 1400 to 2000 Calories in the Women's Hospital series. In the presence of obesity weight should be reduced to lessen the incidence of complications. Protein intake should be liberal, including one to two pints of milk daily where possible. This diet should be decided always in consultation with the patient who has to eat it and subsequently varied according to its effect on her weight.

Urine testing should be carried out by the patient, up to four times daily, and the result recorded for inspection.

Insulin requirements usually vary during pregnancy. In the majority of cases there is a gradually increasing need, which may reach four times the original dose. In such cases, after delivery it falls at once to the original value; and if this is not appreciated, hypoglycaemia in the puerperium will result. Occasionally there is no increase in insulin dosage, and in some after an increase there is a decrease in the last few weeks.

During pregnancy the renal threshold is often lowered, and for this reason random blood sugar estimations are a great help in deciding whether or not to increase the insulin intake. Glycosuria does not always mean hyperglycaemia.

Many patients can be adequately controlled by one dose daily before breakfast of protamine zinc insulin, either alone or mixed with ordinary insulin. I have not had experience of the use of insulin zinc suspensions in pregnancy.

The avoidance of diabetic acidosis is most important, and infection is its commonest precipitating cause. Therefore infection must always be promptly treated and a special watch kept for urinary infection. Also watch the eyes for retinopathy.

A low sodium intake is advised, and ammonium chloride (four to 12 grammes daily) may be given if there is fluid retention.

Owing to the tendency to death of the fetus *in utero* near term and to the large fetal size, most authorities advise early termination of pregnancy. Priscilla White regards as indications for urgent delivery the occurrence of pre-eclampsia, increasing hydramnios, a fetal halo more than four millimetres, the loss of fetal movements with good heart sounds, or a fall in urinary pregnandiol excretion. The pros and cons of this I leave to my obstetrical colleague.

During labour or Caesarean section it is well to avoid hypoglycaemia; so remember that exercise and a reduced food intake mean that much less insulin will be required that day. It is best to give the patient the same diet as any normal person during labour, to maintain an adequate

¹Read at a meeting of the New South Wales Branch of the British Medical Association on April 29, 1954.

fluid intake, to test the urine every four hours and to give ordinary insulin according to the results of urine tests. When appetite has returned to normal, a diabetic diet should be resumed and a return made to insulin given once daily.

If lactation is established as it should be, Calories must be adjusted to maintain the mother's weight. After weaning, the diet is reduced to prevent the development of obesity.

All infants of diabetic mothers should be treated as premature whatever their size. Routine care includes postural drainage, aspiration of the upper passages and stomach, administration of oxygen and penicillin, and dehydration for forty-eight hours.

In conclusion, in pregnancy associated with diabetes there is always increased risk to the fetus. This risk is minimized by meticulous care and team work, but future research will no doubt lead to much improved results.

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DIABETES IN PREGNANCY—THE OBSTETRICIAN'S VIEWPOINT.¹

By ROBERT C. GILL,
Sydney.

A FEW years ago, if a diabetic woman happened to conceive, the medical problem was to save her life, which was in serious danger. The skill of the physician and the advent of insulin have so reduced this risk that, though disasters do occur occasionally, the risk is slight, provided that skilled medical supervision is available and that the advice given is followed. Even so there is a definite risk to the mother, partly due to the risk of obstetric complications (eclampsia, for example, being commoner in the diabetic) and partly due to medical causes. Meticulous ante-natal care reduces these risks very greatly. Statistics are not very informative, partly because of the small size of most recorded series of cases, and partly because any particular series may be selected—for example, in the more severe cases the patient may be advised against pregnancy. An average maternal risk in good hands appears to be about 1.6%—at least 30 times greater than the risk run by a healthy mother. White and her co-workers (1953) consider that the maternal risk is negligible (1:500), but Oakley at King's College Hospital, certainly a good centre, still records a mortality of 1.4% in 275 pregnancies, although he too regards this as preventable. However, the fact remains that, even in highly competent hands, there is a definite maternal danger.

The problem of the mother being under control, the attention of the obstetrician is now concentrated upon the obtaining of healthy live infants—a problem which is far from solved, but which presents some fascinating aspects.

There are many chronic medical diseases during the course of which a woman may conceive, but few affect the fetus to any great extent and none to compare with *diabetes mellitus*. True, in some conditions miscarriage may occur, and in nephritis and hypertension the development of the placenta may be affected, and accidental hemorrhage and eclampsia may occur; this is also the case in

diabetes mellitus, but the unusually large, partly mature baby which can be produced by a diabetic mother in eight months is unique. The fact that abnormalities of the fetus are noticeably more common is also of great interest, when we consider how little we know of the causes of abnormalities apart from heredity and rubella, though dietetic deficiency, especially of vitamins, is suspected of being a factor in some cases. Peel and Oakley (1949) found serious congenital abnormalities to be six to seven times more common in the fetus of the diabetic, especially when hydramnios is present, whilst White and Hunt (1943) found abnormalities to be nine times more frequent.

Diabetic women appear to be rather less fertile than healthy subjects, and abortion is said to occur more frequently, though this is open to question. Figures on the frequency of abortion are difficult to obtain, but it would seem that any increase in the risk of abortion is slight. Thus the diabetic who becomes pregnant has an excellent chance of carrying the fetus to twenty-eight weeks, but during the last three months the fetus is in constant danger. Death *in utero* may occur prior to the onset of labour, often without warning or associated with some complication of the diabetic state or due to toxæmia of pregnancy. Premature labour is not uncommon, especially in those patients in whom hydramnios is present, as it commonly is. Death during labour or due to difficult labour has been a common occurrence, whilst neonatal death is also common, and fetal abnormalities may be incompatible with life.

The marked tendency of the diabetic and the pre-diabetic to produce exceptionally large fetuses is well known and is attributed to the effects of pituitary hormones. In the past many such fetuses have died during labour owing to difficulties associated with their large size, especially as these babies, in any case, do not stand up to the stresses of labour very well. The practice has therefore developed of terminating pregnancy early, as a routine, unless clinical observation suggests that the fetus is inadequately developed. X-ray films should be taken to confirm one's clinical findings (including pelvimetry if vaginal delivery is contemplated) and to exclude the more gross fetal deformities. In most cases Caesarean section is preferred to vaginal delivery, especially in the *primigravida*, owing to uncertainty about the outcome of attempts to induce labour at this stage; and since the majority of diabetic women develop diabetes before their first pregnancy, patients in whom one can confidently anticipate a quick easy labour are uncommon. Thereafter, "once a Caesarean, always a Caesarean" is a sound dictum for diabetes, and the "always" should not be "too often". Caesarean section almost eliminates the risk of fetal death during labour, though the small risk due to anaesthesia is substituted. For this reason some authorities (Peel and Oakley, 1949) advise local analgesia. From the maternal point of view the management of the anaesthetic and post-operative phase should be no more difficult than that of a rather prolonged labour.

Death during the neonatal period is still a problem. The belief that hypoglycæmia in the infant due to overactivity of its own islets of Langerhans can cause its death has been largely disproved, as it has been shown that blood glucose levels in the healthy newborn infant are most unstable and are no more so in the baby of a diabetic mother than in any other baby.

In the series of 599 diabetic pregnancies collected by Peel and Oakley (1949), 11.5% of babies died in the neonatal period, two thirds of them within twenty-four hours of birth, by far the commonest cause of death being prematurity. White and others (1953) find that when pregnancy is terminated (usually by Caesarean section) the survival rate is almost 100% at thirty-eight weeks; at thirty-six to thirty-seven weeks it exceeds 90%, and before thirty-six weeks it is of the order of 60%. Thus prematurity, irrespective of the apparent size of the baby, is by far the commonest cause of neonatal death. This knowledge must be balanced against the fact that fetal death *in utero* is common when one is endeavouring to carry pregnancy on. Intracranial injury has become a

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rare cause of death in recent series of cases, largely because of earlier termination and Cæsarean section. It is interesting to note that Peel and Oakley found a higher neonatal death rate amongst babies born by Cæsarean section than amongst those delivered vaginally. One must be careful not to be misled by the apparent size of the newborn baby, especially as some of the weight may be due to oedema fluid. All such babies should be treated as being premature and kept under constant supervision, and no fluid whatever should be given in the first twenty-four hours. A pronounced drop of weight is of little significance.

White and her co-workers in Boston (1943, 1953) report particularly good results in a very large series of cases, now exceeding 500. The diabetic control must be of an extremely high order, as only one maternal death occurred in the series. Excluding abortion, they claim a survival rate approaching 90%, a standard which is definitely superior to other reported series. They attribute their success to the use of progesterone and stilboestrol, which were given to about half of the patients (those who showed abnormal hormone balance on assay). During the last decade this treatment has been largely used elsewhere, though in many cases smaller doses than those advised by White have been employed, largely to save expense. Most centres have been unable to verify White's claims, though the treatment could scarcely do any harm; but it is very costly. Other centres also report excellent results without the use of any hormones, with an infant survival rate of over 80%. At King George V Memorial Hospital an attempt to evaluate the method is being made by Professor B. T. Mayes and his co-workers, using large doses of progesterone and oestrogens. So far the series is too small to be of any statistical value, but the survival rate is 80%; this is practically the same as that achieved for all such patients, public and private, treated during the last ten years (77.5%)—80 pregnancies in all, in 34 of which some hormone therapy was given. A large-scale controlled trial is being carried out in England by the Medical Research Council, and it is to be hoped that this will give us an answer regarding the value of this form of therapy.

To give a standard for comparison, the survival rate in some recent series is worth mentioning. Oakley (1953) at King's College Hospital in a series of 275 cases reports a survival rate of 78.5%. Sheumack (1949) at the Royal Hospital for Women recorded 67%, Matthew (1949) at Edinburgh recorded 63%, and Barns (1949) in London recorded several small series with figures varying between 54% and 79% (the latter referring to patients receiving stilboestrol).

As long ago as 1937, Hurwitz at the Boston Lying-in Hospital reported a series of 52 cases (53 fetuses) without endocrine therapy and with vaginal delivery whenever possible, with an infant survival rate of 85%. Only eight Cæsarean sections were performed.

Management.

Little can be done to prevent abortion, threatened abortion being treated in the usual way. Meticulous ante-natal care must be given combined with constant watch of the mother's needs as a diabetic. Vitamin concentrates and calcium must be added to her diet in adequate amounts. Termination of pregnancy is rarely justified in the early stages. The value of hormone therapy is still in question, but it must be considered.

From twenty-eight weeks to thirty-seven weeks is the difficult time. If the fetus can be delivered alive, whether by Cæsarean section or vaginally, at thirty-seven weeks, it has an excellent chance of survival; and if it is alive *in utero* at thirty-seven weeks it should be possible to deliver it alive. Meticulous attention to the supervision of the diabetes is most important. The obstetrician must watch for early signs of hydramnios and toxæmia. Toxæmia is less common in the modern pregnant diabetic, presumably because of early termination of pregnancy, but hydramnios is dangerous, as it may precipitate premature labour. Bed rest in hospital will help to reduce this risk, and diuretics may be given in the hope of reducing the hydramnios. Tapping of the uterus is rarely justified, is seldom successful and should be avoided if possible.

A Cæsarean section on a diabetic should be carefully planned. Where specialist services are available, the physician, obstetrician, anaesthetist and paediatrician are all vitally concerned. Local analgesia, though theoretically admirable, is an ordeal to the mother, as adequate premedication is impracticable because of the effects on the fetus. Provided a general anaesthetic is skilfully administered and the surgeon is speedy in delivering the baby, no harm should ensue. Once the baby is delivered, the most valuable asset one can have is a keen and capable nursery sister, as the survival of the newborn baby depends much more on the quality of its nursing than on the orders for treatment given by the doctor. At present there is nothing we can do to prevent deformities. The X-ray examination, which is usual before the pregnancy is terminated, may show such a deformity, and the films should be viewed with this in mind as well as the maturity of the fetus and the adequacy of the pelvis.

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CARCINOMA OF THE RECTUM.

By E. S. R. HUGHES,
Melbourne.

THE rectum is one of the common sites in which cancer develops; in Melbourne, only the breast, stomach, colon and uterine cervix are more frequently involved (Figure I). Cancer notifications reveal that approximately 100 new cases are registered each year from six public hospitals in Melbourne. Because of this relatively high incidence it is perhaps opportune to review the current position of surgery in regard to this tumour.

DEFINITION.

A carcinoma palpable with the index finger on rectal examination is regarded by me as a carcinoma of the rectum or anal canal, as distinct from one seen only with a sigmoidoscope, which is recto-sigmoid or sigmoid. A tumour visualized 10 to 15 centimetres from the anal verge is classified as recto-sigmoid, and a tumour above that level and still visible with the sigmoidoscope is regarded as sigmoidal in origin (Figure II).

The most satisfactory end results in the treatment of carcinoma of the rectum are obtained by a radical abdomino-perineal excision of the rectum with a permanent colostomy. Tumours situated above the 10 centimetre level—that is to say, out of reach of the palpating finger—

rarely need a permanent colostomy, because it is safe to conserve the sphincter mechanism. Preservation of the sphincters can be effected for almost all tumours of the rectum provided they do not actually lie so low as to involve the musculature; but the price of restoration of such function is the greater likelihood of local recurrence (Lloyd-Davies, 1948; Goligher, Dukes and Bussey, 1951).

PRESENT SERIES.

The present series is concerned with carcinomata of the rectum or anal canal which have nearly all been palpable with the finger when inserted to a maximum distance, and for which abdomino-perineal excision of the rectum with a permanent colostomy has been regarded as the treatment of election.

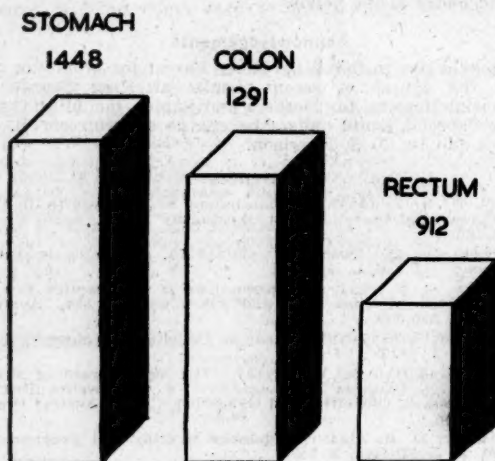


FIGURE I.

Cancer notifications for six public hospitals in Melbourne, 1940-1941, 1946-1952.

In the past three years I have been involved in the treatment of 112 patients with carcinoma of the rectum and have been a principal in the synchronous combined excision in 100 of these cases.

There were 60 males and 52 females. The youngest sufferer was a male, aged twenty-one years; there were five patients aged under thirty years, and nine aged under thirty-five years. The oldest patient to be subjected to resection was a male, aged eighty-five years; this patient was greatly distressed by half-hourly visits to the toilet; he had an uneventful convalescence and was soon managing his colostomy by himself and without difficulty. There were four other patients aged over eighty years. The maximum age incidence was in the seventh decade of life.

Diagnosis.

Most patients in the series had one of more of the typical symptoms associated with carcinoma of the rectum, such as bleeding with the motions, unsatisfied defecation and altered bowel habit. The discovery of the tumour did not occasion surprise.

A small number of patients presented with apparently simple hemorrhoids, perianal hematomata, or *fistula-in-ano*; in two cases there was a history of frequency of micturition, which was of more significance to the patient than increasing constipation. Very unexpectedly in these cases a rectal examination disclosed a carcinoma.

Except in very apprehensive patients, and in those of large physique, digital examination of the rectum alone is sufficient to permit the diagnosis of carcinoma of the rectum. A finger of average length can reach a tumour 10

centimetres from the anus if the hand pushes firmly into the perineum (Figure III). If the tumour can be felt with the finger, a restorative excision is not favoured unless there are exceptional circumstances. A carcinoma of the mid-sigmoid colon may lie in the pouch of Douglas and may be palpable with a finger in the rectum, so causing confusion. A sigmoidoscopic examination will reveal the absence of ulceration in the rectum, unless the tumour is actually invading its wall.

Sigmoidoscopic examination enables the surgeon to visualize the tumour palpated and permits a biopsy from its edge. It is sound practice to have microscopic confirmation of the diagnosis in all cases (Gabriel *et alii*, 1951). Sigmoidoscopy is indispensable in complete anorectal examinations (Hughes and Turner, 1953), and most

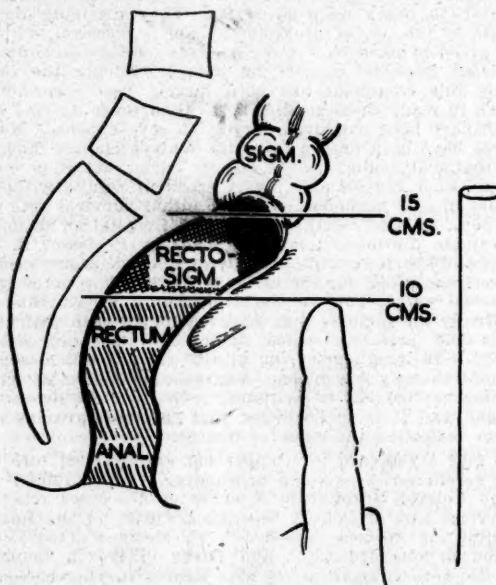


FIGURE II.

The classification which I use. A carcinoma of the rectum lies within 10 centimetres of the anal verge, whilst a carcinoma of the recto-sigmoid is situated between 10 and 15 centimetres from the anal verge. A carcinoma of the rectum is nearly always palpable with the finger.

surgeons can recall cases in which carcinomata of the recto-sigmoid and lower sigmoid colon were not palpable with the finger, and were seen in the course of routine sigmoidoscopic examination.

Treatment.

The cases in this series have been classified into four groups (Figure IV), as follows.

Inoperable Carcinoma of the Rectum.

A small number of patients were examined for the first time in a semi-moribund or cachectic state. In five instances in this series no operative treatment could be contemplated because the patient was obviously dying, and any treatment of the rectal condition could in no way favourably influence the course of the terminal illness. Two were admitted to hospital with large bowel obstruction and died an hour or two after admission, and three were grossly cachectic, the sequel of diffuse metastatic deposits and chronic blood loss.

No patient has been regarded as inoperable because of apparent size or fixity of the tumour. A number of cases appeared to be quite hopeless on clinical evidence, but at operation a mobile and apparently curable tumour was

found. This impression of fixation of the tumour may be conveyed if the bony pelvis is unduly small or if a large mass of faecal material has accumulated above the tumour.

Laparotomy: No Excision.

In this series, 107 patients were prepared for abdomino-perineal excision of the rectum. After exploration of the abdomen, it was decided in seven cases that excision was contraindicated. The decision to leave the rectum with its tumour was made only after the most careful consideration of the circumstances.

A small primary tumour of the rectum causing minimal discomfort to the patient, but associated with extensive metastatic spread to the liver, peritoneum or elsewhere, does not call for excision, nor does it require a palliative

frequent hæmorrhages caused by the carcinoma. In some the relief is but short-lived and within a few months the patient rapidly declines; but in a few instances the patient survives for years despite the presence of proven hepatic secondary deposits. Abel (1950) recently quoted a small series of cases in which resection was performed in the presence of secondary deposits in the liver, and in which there was survival for periods up to eight years.

Palliative excisions do not call for extensive operations, and the operating time is frequently no more than forty-five minutes or less. At the same time the operation must be done with care, because a poorly done palliative procedure will not achieve its objective. An increased operative risk must be accepted by the surgeon, as it will gladly be by the patient. In this series of 29 palliative excisions of the

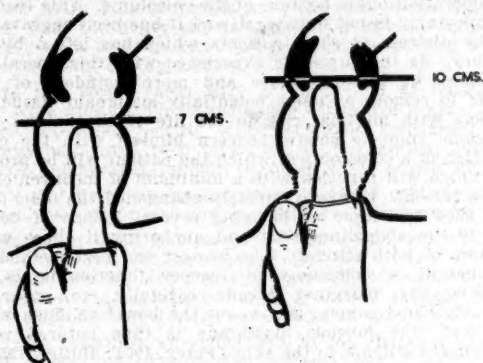


FIGURE III.

To demonstrate the manner in which pressure on the perineum enables the clinician to reach the upper third of the rectum by digital palpation.

colostomy. The end will come long before the tumour reaches a size which may cause mechanical embarrassment.

A tumour infiltrating beyond the limits of the rectum and involving the entire pelvis and its contents cannot be removed without mutilating surgery. If there are no secondary deposits in the liver or elsewhere, the surgeon may seriously consider proceeding with such pelvic evisceration as is required; but an operation of this nature on the patient with secondary deposits in the liver is out of the question. With these tumours "freezing" the pelvis, a palliative colostomy is but humane.

The more experienced the surgical team, the greater the number of patients will be given the benefit of excision of the rectum. At the same time, removal of the rectum should not become a point of honour. The surgeon should realize that the most he can give the patient is a month or two of relative comfort, and it is sometimes a matter for fine judgement as to whether this is obtained by palliative excision, by palliative colostomy, or by simple closure of the abdominal wound.

Palliative Abdomino-Perineal Excision of the Rectum.

Malignant tumours of the rectum are responsible for untold discomfort to the patient and should be removed in the majority of those who seek treatment. Of the 100 patients subjected to abdomino-perineal excision of the rectum, 29 were obviously incurable at the time of the operation. Secondary deposits in the liver, peritoneal metastases and extensive lymph node involvement gave the case a hopeless prognosis. Despite the presence of this dissemination of the tumour, the rectum was removed and the patient given a terminal left iliac colostomy.

In the majority of such patients so treated there has been a period of considerable improvement in general health. It is not surprising to see a gain of one or two stone in weight. There are no longer the tenesmus and

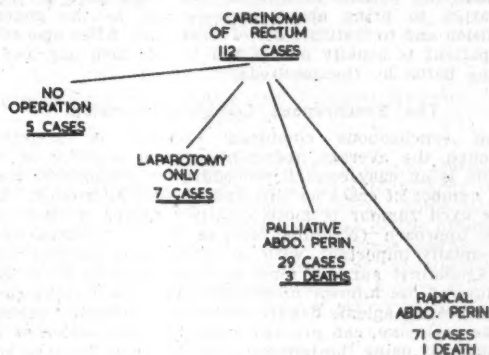


FIGURE IV.

Table to show the classification of cases in respect to the treatment.

rectum there were three operative deaths. The first patient to die, a male, aged sixty-nine years, fell dead on the fourteenth post-operative day as he was leaving hospital. The second, a male, aged seventy-six years, succumbed quite suddenly on the seventh post-operative day after a brief period of severe precordial pain. A third patient, a male, aged thirty-five years, died on the eighth post-operative day; his condition had begun to deteriorate twenty-four hours before he died, and he gradually passed into a state of peripheral circulatory failure, the cause of which remained obscure. Each of these patients was in a poor state of health at the time of the operation, and in each secondary deposits were palpable in the liver.

Curative Abdomino-Perineal Excision of the Rectum.

In 71 cases it was thought that by radical abdomino-perineal excision of the rectum a cure was possible. There was no evidence at operation that the tumour had definitely spread beyond the reach of the surgeon. The surgeon appreciates the uncertainty of cancer surgery and will realize that in many of these cases the tumour has in fact spread well beyond his limits. The follow-up period in this series is as yet too short to determine what measure of success has been obtained, but the painstaking work of Cutthbert Dukes (1949) indicates that survival may be expected in at least 50% of cases.

It is very difficult to estimate the significance of enlarged firm lymph nodes in these cases. Some glands are enlarged and hard and seemingly involved beyond question by malignant change, and yet examination of sections fails to reveal any abnormality other than inflammation. The surgeon should not, therefore, abandon a case because of apparent lymph node extension. On the other hand it is not uncommon to find microscopic evidence of infiltration in glands which feel perfectly normal.

There was one death in this series of 71 cases.

This patient was a male, aged seventy-six years, who had previously been admitted to hospital with acute large bowel

obstruction due to carcinoma of the upper third of the rectum; he had vomited copiously prior to his admission. A caecostomy was performed under local anaesthesia, and a fortnight later an abdomino-perineal excision of the rectum was carried out. This patient was of poor mental condition with clinical and serological evidence of syphilis. He died three weeks after operation, and autopsy revealed a lung abscess and an aortic aneurysm.

FEATURES OF THE RADICAL ABDOMINO-PERINEAL EXCISION OF THE RECTUM.

Length of Stay in Hospital.

The length of stay in hospital naturally varies, but on the average it is three to four weeks. One patient actually went home on the seventh post-operative day, and several went home on the tenth post-operative day. It is desirable to have the patient in hospital for some days prior to operation to bring about improvement in the general condition and to institute bowel treatment. After operation the patient is usually out of bed by the fifth day and is having baths by the tenth day.

The Synchronous Combined Excision.

The synchronous combined excision is preferred. Although the average abdomino-perineal excision of the rectum is an easy enough procedure for a single surgeon, in a number of cases he will find himself in trouble. The large fixed tumour is more readily removed by the combined approach (Naunton Morgan, 1950). Furthermore, and equally important, with an experienced team at work the abdominal surgeon may be concentrating on a high ligation of the inferior mesenteric artery with subsequent freeing of the splenic flexure, whilst his colleague, working in the perineum, can proceed with the mobilization of the rectum. By using the Lloyd-Davies lithotomy stirrups both abdominal and perineal surgeon can work in comfort and with good exposure. Posturing the patient on the operating table must be undertaken by the surgeon; it is not to be delegated to assistant or dresser, because a large measure of the advantages of this synchronous combined excision depends on how carefully the patient has been arranged on the operating table.

The Extent of the Resection.

The extent of the resection is governed by the potential spread of the tumour. A tumour below the peritoneal reflection is more likely to involve glands on the lateral wall of the pelvis, and in these cases it seems more important to concentrate on a meticulous clearance of lymph nodes and their connexions from the pelvis. Only too frequently a recurrence develops in these cases deep in the pelvis on its lateral walls. In these low-lying tumours mere section of the levator ani as far away from the rectum as possible is not enough; the abdominal surgeon must peel the pelvic fascia off the iliac vessels and its major branches with the same care as is taken in dissecting the axillary vein in radical mastectomy (Sauer and Bacon, 1952). In sweeping the rectum forwards off the sacrum this pelvic fascia is included; with the ligation of the middle haemorrhoidal vessels the surgeon can free the rectum from the lateral wall of the pelvis. A rough dissection will take the surgeon into the wrong plane and expose the patient to a greater risk of recurrence, and is likely to damage the presacral nerves and interfere with bladder and sexual function (Williams, Watson and Goligher, 1951).

When the tumour is at or above the peritoneal reflection, the upward spread of the disease becomes more significant; in these cases the inferior mesenteric artery may be best removed at its origin from the aorta (Abel, 1950; Grinnell and Hjatt, 1952). This entails freeing the splenic flexure to enable a left inguinal colostomy to be fashioned. The more accomplished the perineal surgeon, the more frequently will the abdominal surgeon feel bound to undertake this high ligation. The higher the ligation of the pedicle, the greater the chance for success. Certainly the ligature should never be applied below the bifurcation of the aorta, which represents the level at which the left colic artery arises.

For all low-lying tumours of the rectum in the female, the posterior wall of the vagina together with the recto-vaginal septum should be removed (Naunton Morgan, 1950; Knight and Dockerty, 1952). The vaginal wall need not be repaired, and the perineal wound can be drained through the vagina.

If neighbouring viscera are involved they should be resected in part or in whole. A loop of small bowel may require resection, whilst the surgeon should not hesitate to remove the uterus if it is involved.

The Colostomy.

The chief disadvantage of the radical abdomino-perineal excision of the rectum is the necessity for a permanent colostomy. Some patients decline the chance for the cure this operation offers because of the colostomy. This fear of the colostomy is not unnatural, and it has been aggravated by the distress of some patients which has left a bitter memory. As the surgeon's experience with this operation increases, he becomes more and more confident of his ability to remove as much potentially malignant tissue as possible with minimal risk to the life of the patient; at the same time he should concern himself with the construction of a colostomy of which the patient will be proud, and which will function with a minimum of inconvenience to the patient. I have completely abandoned the older but still used technique of bringing several inches of colon outside the abdominal wall and anchoring it there with a clamp or with stitches. The neatest and best method of establishing a colostomy for proper functioning is to preserve the marginal arcade carefully, so ensuring adequate blood supply, and to cut the bowel off flush with the skin; the mucous membrane is then sutured with interrupted stitches to the skin (Patey, 1951; Butler, 1952). No bowel projects above the surface of the skin; stricture formation is minimal, and when the wounds are healed the colostomy remains as a neat, small opening. Some surgeons prefer to teach their patients a "wash-out" regime for their colostomies, whilst others endeavour to obtain regular, natural bowel actions by attention to diet and so dispense with the need for the more cumbersome wash-out apparatus and technique. My practice is to explain the situation frankly to the patient and leave the choice to him. Most prefer to try the "no wash-out" method (Dukes, 1947).

After-Care of Abdomino-Perineal Resection Patients.

Patients who have been subjected to an abdomino-perineal excision of the rectum require close observation in the post-operative period. It is common to find the haemoglobin level slipping imperceptibly in the first few days after operation. This can often be accounted for by the collection of blood in the perineal wound. I do not adopt irrigations of the perineal wound, but allow it to heal on its own; blood clot is soon absorbed. For the same reason I am not in favour of the use of the expensive streptokinase-streptodornase irrigations which have been advocated.

The patient should be warned about the likelihood of the colostomy overacting in the first few days. It is desirable to allow the patient to the bath at the earliest stage, and this is usually about the eighth to the tenth day. The patient needs constant encouragement in the early days, and later this can give way to praise and admiration for the way in which the colostomy has been managed and difficulties have been surmounted. The patient should be urged to resume all previous activities. Even the most stubborn and the most introspective individual can usually be persuaded in the end to forget that there is an abnormal anatomical arrangement of his bowels. The surgeon must never abandon these patients; their happiness must be his own responsibility. To construct a hasty colostomy and then, having watched the patient recover from the operation, to discharge him with little or no advice is wrong.

Unfortunately a number of patients return with obvious recurrences. In the female a perineal recurrence can usually be identified through the vagina, but in the male there may be months of persistent perineal pain without

any clinical evidence of a mass. Once a patient has undergone an abdomino-perineal excision of the rectum, there is a tendency for his medical advisers to be pessimistic in regard to any abdominal pain which develops. The surgeon should be cautious before accepting a diagnosis of recurrent malignant disease in such cases, because tragedies have occurred in which the patient has died, and at autopsy there has been no evidence of carcinoma, but an obstruction due to a simple adhesion or to acute appendicitis with general peritonitis.

SUMMARY.

1. A consecutive series of 112 cases of carcinoma of the rectum has been reviewed.

2. A carcinoma of the rectum lies within 10 centimetres of the anal verge, and is best treated by radical excision of the rectum with a permanent colostomy. A tumour situated 10 to 15 centimetres from the anal verge cannot be felt with the finger and is regarded as a recto-sigmoid tumour; such tumours can nearly always be excised with preservation of the sphincters.

3. In this series there were 60 males and 52 females; there were nine patients aged under thirty-five years. The patient presented usually with symptoms recognized as typically associated with carcinoma of the rectum, but in a small number the tumour was discovered unexpectedly.

4. In five instances no operation could be contemplated because the patient was clearly dying when first examined.

5. In seven cases a laparotomy was performed with a view to excision of the rectum; but the extent of the malignant process was found to contraindicate resection. A colostomy was established only if it was thought that such a measure would bring some relief to the patient.

6. In 29 instances, on exploration of the abdomen it was found impossible to cure the patient; but a palliative excision of the rectum was performed, with three deaths. Removal of the rectum brings considerable relief to the patient.

7. In 71 cases a radical abdomino-perineal excision of the rectum was carried out in the expectation of curing the patient. There was one death.

8. After an abdomino-perineal excision of the rectum the patient is in hospital for about three weeks. The most satisfactory method of performing this operation involves the simultaneous dissection of the abdomen and the perineum by two surgeons. The extent of the resection is governed by the situation of the tumour. The colostomy must be constructed with the greatest of care, whilst the welfare of these patients in both the immediate and the remote post-operative period is the responsibility of the surgeon.

ACKNOWLEDGEMENT.

I wish to acknowledge the kindness of the Registrar of the Anti-Cancer Council of Victoria for the information embodied in Figure I.

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THE MORTALITY IN AUSTRALIA FROM CANCER (CONCLUDED).

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THIS paper concludes the survey of the official statistics of cancer in Australia for the years 1908 to 1945 by considering some of the less common cancers. Some tables are given to show the relative importance of the different sites of cancer as a cause of death. Sarcoma, melanoma, non-malignant tumours and tumours of undetermined malignancy are then briefly discussed. A few general remarks are then made on the study of cancer mortality in Australia.

Cancer of the Skin.

Cancers of the lip and of the male and female external genitalia have already been dealt with in this survey (Lancaster, 1954b, 1952 and 1951). All forms of malignant disease arising from all other areas of the integument are grouped together in the International List of Causes of Death as the cancers of the skin. The death rates from these cancers of the skin are set out in Table I. The tabulations over the years of the survey do not enable us to do more than guess that, at the younger ages, many cancers of the skin are melanomata; but in *Demography* for 1950 the deaths are classified according to the Sixth Revision of the International List, and this conclusion is well borne out. As with other cancers, the death rates from cancer of the skin increase with age. In fact, comparison of the age incidence of the cancers by site in Figure II of a previous paper (Lancaster, 1952) might indicate that cancer of the skin was a cancer of the very old, more particularly so than any other of the cancers of the male. This is not in conformity with clinical experience of skin cancers, and the form of the curve of the death rates is probably dependent on the high cure rate for the cancers of the skin, so that few persons die of rodent ulcer or epithelioma at the young ages, although both tumours are notoriously common in Australia; for example, Bull and Hanson (1933) noted that cancer of the skin as defined in this paper accounted for almost half of all new admissions to an Adelaide clinic. It seems that the deaths of the very elderly occur in long-standing and neglected cases, or that in some cases cancer of the skin has been mentioned casually on the death certificate and in the absence of mention of more definite disease has been taken to be the cause of death. Table I also shows that the death rates are usually about 50% higher in the males than in the females. This is perhaps related to the greater exposure of the male to the weather, either in pursuit of his occupation or in sport, and to the greater tendency to neglect among elderly males.

There is little evidence of decline in the death rates from cancer of the skin in Australia. There is indeed a considerable rise for females at the ages thirty-five to fifty-four years. This rise may be related to the increasing exposure of the female in recent years in such outdoor

TABLE I.
Trends of the Mortality in Australia from Cancer of the Skin.

Period.	Sex.	Deaths per Million per Annum at Ages (Years).							
		0 to 24.	25 to 34.	35 to 44.	45 to 54.	55 to 64.	65 to 74.	75 and Over.	All Ages.
1908 to 1910	M.	0	5	15	38	102	239	706	29
1911 to 1920	M.	1	3	13	49	125	311	970	38
1921 to 1930	M.	1	2	22	62	199	467	1335	41
1931 to 1940	M.	1	6	13	35	84	252	970	43
1941 to 1945	M.	2	11	17	36	78	237	918	48
1908 to 1910	F.	1	2	1	11	29	118	480	12
1911 to 1920	F.	1	2	6	17	60	143	695	20
1921 to 1930	F.	1	1	4	17	51	154	744	23
1931 to 1940	F.	1	2	5	11	38	116	599	24
1941 to 1945	F.	1	4	15	23	44	106	587	31

TABLE II.
Mortality in Australia from Cancer of the Bladder.

Period.	Sex.	Deaths per Million per Annum at Ages (Years).							
		0 to 24.	25 to 34.	35 to 44.	45 to 54.	55 to 64.	65 to 74.	75 and Over.	All Ages.
1908 to 1910	M.	0	1	2	4	14	72	183	21
1911 to 1920	M.	0	3	7	22	72	197	297	18
1921 to 1930	M.	1	1	8	27	82	241	426	26
1931 to 1940	M.	0	1	5	35	101	276	528	36
1941 to 1945	M.	0	1	8	31	109	281	507	39
1908 to 1910	F.	0	2	3	16	18	67	63	6
1911 to 1920	F.	0	1	5	10	39	60	106	7
1921 to 1930	F.	0	1	2	15	36	79	177	10
1931 to 1940	F.	0	0	3	12	45	119	212	16
1941 to 1945	F.	0	0	5	10	46	103	188	17

TABLE III.
Mortality in Australia from Cancer of the Kidney.

Period.	Sex.	Deaths per Million per Annum at Ages (Years).							
		0 to 24.	25 to 34.	35 to 44.	45 to 54.	55 to 64.	65 to 74.	75 and Over.	All Ages.
1908 to 1910	M.	3	3	8	13	27	41	99	8
1911 to 1920	M.	5	1	6	18	32	36	37	9
1921 to 1930	M.	5	3	6	24	43	68	60	13
1931 to 1940	M.	3	3	9	29	51	89	91	16
1941 to 1945	M.	4	4	7	27	58	95	81	18
1908 to 1910	F.	4	2	8	7	14	34	25	6
1911 to 1920	F.	4	2	6	15	22	33	37	7
1921 to 1930	F.	4	2	6	12	33	52	48	9
1931 to 1940	F.	4	2	5	19	29	60	87	12
1941 to 1945	F.	3	1	7	13	27	61	46	11

sports as surfing, golf and the like. Educational campaigns seem to have been successful in bringing the patient to the clinic earlier, and it may be that the official statistics do not give a fair picture of the trend of the death rates from the disease. However, the slight rise in the male rates in Table I and the more definite rises in the female rates show that cancer of the skin has not diminished in importance. The special features of cancer of the skin in Australia have been discussed by Paul (1918) and by Molesworth (1927 and 1944). These authors have devoted special attention to the effect of trauma and sunlight on the carcinomata of the skin, but do not comment on the possibility that sunlight may produce melanomata. In view of the very different frequencies of cancer of the skin in Australia and in England and Wales, more pronounced differences might have been expected in the death rates; the Australian rates are only about double the corresponding English rates for every age and for each period since 1908. Cancer of the skin is discussed further in the later section on melanoma.

Cancer of the Bladder.

The mortality rates from cancer of the bladder are given in Table II. There appears to have been an increase in the rates over the years of the survey. Although cancer of the bladder is one of the less common cancers, it is now believed to present one of the major problems in clinical urology.

Cancer of the Kidney.

Cancer of the kidney is also one of the less common cancers. The death rates from cancer of the kidney are given in Table III. The rates are higher for the males than for the females.

A Comparison of the Importance of Cancers of Various Sites.

It is usual to consider the relative frequencies of cancer from the various organs. In dealing with mortality statistics, two measures are of some interest. Although they answer slightly different questions, in general they

give the different sites much the same ranking. The first is the crude death rate from cancer, which indicates the number of deaths that occur per million *per annum* in an actual population at some epoch of time. It is evident that it is the rate appropriate for administrative purposes for assessing the numbers of beds necessary, and so on, and that it corresponds to the whole population as observed by the clinicians. But it is of less value for comparative purposes, for it depends very largely on the age composition of the population studied. It has led in the past to very erroneous conclusions as to the increasing frequency of cancer. Nor is the crude rate of any value for forecasting, as the age composition of a population is continually changing. The second measure, the rates standardized onto a life table population, is the death rate that might be expected to occur in a population of a certain form, the life table population, if its members were exposed at every age to the same death rates as held in a certain actual population. This standardized death rate is also approximately proportional to the probability that an individual will die of cancer during the course of his life, which is, in fact, the standardized cancer death rate divided by the standardized death rate from all causes. The standardized death rate is independent of the age constitution of the actual population. It is therefore well suited for comparative purposes. In Table IV, the crude death rates and the death rates standardized onto a life table population formed from data of the 1933 census of Australia are given. Alongside the crude and standardized rates, the rank of the site in frequency is given. In males, the two orders of frequency or rankings are identical for the sites considered. In females, there is a difference in the first rankings. When the crude death rates are used as a criterion, the breast is the most frequent site; but when the standardized rates are used, the most frequent sites are the stomach and duodenum. This change in rank is due to a difference in the age distribution in the two cancers. Cancer of the duodenum and stomach tends to occur at a higher age than cancer of the breast, and is therefore more heavily represented in the standardized death rates, for the actual population in Australia in 1931 to 1940 was young in relation to the standard population. However, there is a general tendency for the rankings of the frequencies of the various sites to agree in either sex and for the rankings to be similar in the two sexes, if allowance is made for the cancers peculiar to either sex. Notable exceptions are the buccal cavity and the respiratory system.

Tumours, Non-Malignant and of Undetermined Malignancy.

As has already been stated, cancer in the official statistics is to be read as malignant disease. There are, however, other less well defined groups of tumours—the non-malignant tumours and the tumours of undetermined or unstated malignancy. Since non-malignant tumours are not as a rule lethal, this group will contain either very common tumours such as fibromyoma of the uterus and cysts of the ovary or tumours lethal because of their special situation such as intracranial tumours. Cerebral tumours will be represented in this group also because the malignancy of many of them is difficult to assess.

This group is a difficult one to follow through in the annual issues of *Demography*. In Table V is given a general idea of the mortality from this group of deaths. Before 1930, the recorded death rate is quite low from the non-genital tumours of this group, because in the earlier years many of the intracranial tumours seem to have been assigned by the statisticians to "other diseases of the nervous system". From 1931 up to 1945, the crude death rates are about 50 per million for males and about 40 per million *per annum* for females.

The death rates from the non-malignant tumours of the female genital system have remained constant, as can be seen from the crude death rates given in Table V. In Table VI, the age-specific death rates are given for these tumours, non-malignant and of undetermined malignancy, of the female genital system. At the younger ages the rates

have been rather constant, but at ages above fifty-five years there has been a fall in the rates. The deaths from tumours of the uterus and of the ovary have not always been distinguished in *Demography*, so they are given in Table VI only for the years 1941 to 1945. The deaths from non-malignant tumours of the uterus tend to be concentrated at ages thirty-five to fifty-four years, and they are about four times as common at these ages as the non-malignant tumours of the ovary. At ages over sixty-five years, the non-malignant tumours of the ovary are commoner than

TABLE IV.

A Comparison by Site of the Mortality from Cancer in Australia, 1931 to 1940.

Site of Cancer.	Death Rates per Million per Annum.			
	Males.		Females.	
	Crude.	Standardized.	Crude.	Standardized.
Stomach and duodenum ..	325 (1) ¹	530 (1)	184 (2)	351 (1)
Breast ..	2	3	206 (1)	327 (2)
Intestines ..	135 (2)	219 (2)	159 (3)	285 (3)
Prostate ..	108 (3)	198 (3)	—	—
Buccal cavity ..	99 (4)	170 (4)	14 (13)	27 (13)
Uterus ..	—	—	157 (4)	235 (4)
Respiratory ..	73 (5)	109 (5)	25 (9)	39 (10)
Ovary ..	—	—	53 (6)	72 (6)
Rectum ..	61 (6)	98 (6)	43 (7)	70 (7)
Œsophagus ..	51 (7)	85 (7)	16 (11)	30 (11)
Skin ..	43 (8)	79 (8)	24 (10)	57 (9)
Liver ..	43 (8)	71 (9)	56 (5)	102 (5)
Pancreas ..	40 (10)	64 (10)	32 (8)	58 (8)
Bladder ..	36 (11)	61 (11)	16 (11)	30 (11)
Kidney ..	16	23	12	18
Other sites ..	91	115	72	112
All cancer ..	1123	1825	1069	1813

¹ The ranks by frequency are given in parentheses.

those of the uterus. The tumours of undetermined malignancy of the female genital system form too small a group to be tabulated separately.

Sarcoma.

It should be noted that the great bulk of malignant disease is caused by the carcinomata, and so not much new information is obtained by taking out the sarcomata

TABLE V.

The Crude Death Rates in Australia from Tumours Other than Malignant (Non-Malignant or Not Determined).

Period.	Death Rates per Million per Annum.		
	Males.	Females:	
		Non-genital Tumours.	Genital Tumours.
1908 to 1910 ..	13	14	33
1911 to 1920 ..	7	9	29
1921 to 1930 ..	11	11	29
1931 to 1940 ..	50	43	26
1941 to 1945 ..	53	39	26

and melanomata, for the carcinomata alone will have practically the same age distribution as the cancers of the official statistics. It is of some interest, however, to treat the sarcomata and melanomata separately. In Table VII are given the death rates from sarcoma, derived from some subsidiary tables in *Demography*, which classify the deaths from malignant disease by type of growth, sex and age. These tables would be of much greater use if the deaths were also simultaneously classified by site. This would lead to extensive tabulations; but the difficulty might be got over by not publishing them annually but every ten

TABLE VI.
Mortality from Non-Malignant and Not-Determined Tumours in Australia.

Period.	Deaths per Million per Annum at Ages (Years).							
	0 to 14.	15 to 24.	25 to 34.	35 to 44.	45 to 54.	55 to 64.	65 to 74.	75 and Over.
Males:								
1931 to 1940 ..	26	17	30	54	89	123	119	154
1941 to 1945 ..	22	16	25	46	92	136	132	203
Females (non-genital tumours):								
1931 to 1940 ..	22	14	25	49	77	95	91	130
1941 to 1945 ..	22	12	24	40	60	76	83	148
Females (genital tumours):								
1908 to 1910 ..	0	8	38	68	88	72	129	139
1911 to 1920 ..	0	5	28	59	81	69	78	171
1921 to 1930 ..	0	3	20	65	93	46	62	136
1931 to 1940 ..	0	2	15	60	87	25	29	62
1941 to 1945 ..	0	2	17	50	76	27	45	87
Females (ovary):								
1941 to 1945 ..	0	2	8	9	15	10	23	55
Females (uterus):								
1941 to 1945 ..	0	0	8	40	59	13	17	19

years. In *Demography*, sarcoma is assigned to the cancer rubrics of the International List, for "cancer" is used in the general sense of malignant disease, which is its older and popular sense. Sarcoma is a disease of all ages and tends to attack rather younger persons than carcinoma. At ages under twenty-five years, sarcoma is responsible for about half the deaths from malignant disease. After that age sarcoma is less important than carcinoma. This should not lead to the well-known statistical fallacy that sarcoma is more common at the younger ages than at the older. In fact, the rates in Table VII show that the death rates from sarcoma increase throughout life. The rates are higher in males than in females.

TABLE VII.
Mortality in Australia from Sarcoma and from Melanoma in the Years 1931 to 1945.

Age (Years).	Deaths per Million per Annum.			
	Sarcoma.		Melanoma.	
	Males.	Females.	Males.	Females.
0 to 14 ..	16	14	0	0
15 to 24 ..	21	16	3	2
25 to 34 ..	24	14	7	6
35 to 44 ..	31	22	8	6
45 to 54 ..	65	53	13	12
55 to 64 ..	110	95	22	14
65 to 74 ..	173	135	28	19
75 and over ..	215	171	34	33
All ages ..	44	36	8	6

Melanoma.

In the London survey of cancer (Harnett, 1952) melanoma of the orbit was as common as melanoma of the skin, 47 melanomata of each site occurring in a total experience of 15,201 cancers. Australian experience is that melanoma of the skin is much more common than melanoma of the orbit, and this is in accordance with Connecticut experience (Macdonald, 1948). The death rates from melanoma are given in Table VII. It is possible that a considerable number of the deaths from cancer of the skin of younger persons were caused by melanoma over the years of the survey, 1908 to 1945. In 1950 and 1951 there were more deaths from melanoma of the skin than from all other cancer of the skin up to the age of about sixty years. Melanoma may be activated by irritation and by sunlight (McGovern, 1952), for there is a tendency for it to occur on those parts exposed to the sun. This may account for the very striking differences in incidence between Australia and England and Wales. Thus there

were, in 1951, 112 male and 137 female deaths from melanoma of the skin in England and Wales, compared with 61 and 49 deaths in Australia in the same year; in other words, only about twice the deaths in five times the population.

The Mortality from Cancer in Australia.

The mortality in Australia from cancer has now been reviewed by means of the data set out in *Demography*, the annual bulletin of the Bureau of Census and Statistics, Canberra. First, the mortality from cancer as a whole was discussed (Lancaster, 1950); in that paper, the use of the word "cancer" was defined and the sources of data were mentioned. The correct measurement of the cancer mortality by means of the age-specific and the standardized rates was then dealt with, stress being laid on the errors that have followed in the past from considering only the crude death rates. It was concluded that there has probably been only a small increase in the total risk of dying from cancer over the years of the survey. The next two papers discussed the cancers peculiar to either sex (Lancaster, 1951 and 1952). In the first of these two, the advantages of considering the deaths in a life table population were mentioned, and cancers peculiar to the female were considered in detail. It was necessary to pool the whole of the Australian experience for 1908 to 1930 and for 1931 to 1945 in order to get adequate comparisons for the less common sites of female cancer. It appeared that there had been some reduction in the mortality from cancer of the uterus, but that the death rates from cancers of the breast and ovary had increased. The tables in *Demography* were then used to estimate the effect of marriage and of parity on the frequency of the various cancers peculiar to the female. A similar procedure was adopted in the study of the cancers peculiar to the male (Lancaster, 1952). The general conclusions were that cancer of the female breast was less common in the married than in the never-married and still less common in those married who had borne children. Cancer of the uterus is more common in the married than in the never-married, but does not appear to be more common in the married with children than in the married without children. In the male, cancer of the prostate seems to be more common in the married than in the never-married. Cancer of the respiratory system has been shown (Lancaster, 1953) to be increasing in Australia, but to be much less common than in England and Wales. Since there is a relative freedom here from industrial smoke and effluvia, there seems to be an opportunity for a clinical study to test theories on the aetiology. Cancer of the pancreas has next been considered (Lancaster, 1954a) and its association with diabetes noted with the aid of hospital statistics. The most important group of cancers is that of the alimentary system (Lancaster, 1954b). The remaining cancers form the subject of the present paper.

Conclusions.

A review of the official statistics is useful in many ways. First, it shows, as no other investigation can show so economically, the importance of cancer as a cause of death. It may be argued that the certifications of death are not so accurate as the post-mortem diagnoses in a teaching hospital. There are, however, three major objections to the use of hospital statistics; the number of cases in any one hospital is necessarily small, so that sampling errors may cause the experience of one hospital to differ from that of another; the hospital populations are selected, in that a younger patient has relatively more chance of being represented than an older one; it is usually impossible to relate the patients of a hospital to a population at risk. These objections may be largely overcome by pooling the experience of all the hospitals serving a known area, as has been done in London in the survey carried out by the British Empire Cancer Campaign (Harnett, 1952). An advantage of such a scheme is that a follow-up campaign is carried out simultaneously, and indeed the incidence statistics will be largely a by-product of such an investigation. There have been but few follow-up studies of any cancer in Australia. This is of some importance, because on the follow-up results only can rational ideas on treatment be formed.

Acknowledgements.

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Reviews.

A Handbook for Dissectors. By J. C. Boileau Grant and H. A. Cates; Fourth Edition; 1953. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 7½" x 5", pp. 440, with 26 text figures. Price: £1 17s. 9d.

This dissecting-room guide, originally written for use with "Grant's Methods", is a model of brevity and clarity: the instructions given are adequate for the dissection of the major structures of the body.

Of the twenty-six figures (one duplicated) over half show skin incisions only: additional diagrams, particularly for the perineum, head and neck and brain dissections, would make the student's task easier.

The text could possibly be improved by giving more generalizations in the introduction—for example, the different types of ligament, and the relative frequency of variations in different tissues; by placing more emphasis on surface anatomy and by making mention of definite osseo-fascial

compartments and the position of the more definite groups of lymph nodes—for example, in the pelvis.

Printing errors are very few, page 247 containing an exception; the index is adequate, though there are obvious omissions—for example, ear, tympanum, ovary.

Although this is a most satisfactory handbook for dissectors, many students would doubtless prefer to have dissecting instructions and regional anatomy text in the same volume.

Psychiatry and Medicine: An Introduction to Personalized Medicine. By Leslie A. Osborn, M.B., B.S. (Melbourne), M.D. (Buffalo); First Edition; 1952. New York: McGraw-Hill Book Company, Incorporated. 9½" x 6½", pp. 508. Price: \$7.50.

LESLIE A. OSBORN'S "Psychiatry and Medicine" is described by the author as an "Introduction to Personalized Medicine". It is of interest that Professor Osborn, now professor of psychiatry at the University of Wisconsin Medical School, is a medical graduate of the University of Melbourne.

The author sets out to integrate the practice of general medicine with present-day concepts of the importance of interpersonal relationships between doctor and patient. His experience in the field of general practice, general medicine and psychiatry lends weight to his view that the student of medicine should learn early correct emotional attitudes to the sick person, and that both his and his patient's emotional problems play a large part in therapeutic effectiveness.

The scope of the book is very wide and it is divided into two parts. The first part entitled "Theoretical Considerations" covers such matters as attitudes to illness, origin and nature of symptoms, the handling of parents and children, and the interaction of people upon one another. The effects of frustration are dealt with and also problems of modern living as they express themselves in the sick patient.

In other sections of the first part the author deals with the development of problems of individuals and of social groups. Each section contains something that is conclusive, shrewd and homely.

The basic psychopathology on which Professor Osborn bases his conclusions appears to come from many schools of thought, no one school obtruding so much that controversial material is presented. The style of presentation is discursive and informal and gives the impression that the writer is thinking aloud or conducting a student lecture from notes rather than from script. This method produces a book that is warm, readable and in the main interesting, but with no pretension to conciseness of medical prose. There is a tendency to preach rather than teach psychological principles, and, whilst this approach would no doubt hold the interest of a student audience, such a method of presentation might well irritate an organically minded physician seeking conclusive evidence of the part played by emotional factors in illness.

The second part of the book deals with practical implications of the principles discussed in Part I, and here there is more to interest the student of psychiatry. The sections dealing with interview techniques and with history taking from patient and relatives are well worth reading and suggest that Professor Osborn has had much experience in face-to-face contact with patients and their relatives. The section dealing with therapies attempts no more than a general introduction to the subject and would be best read by the student in conjunction with supervised experience.

Professor Osborn's book is certainly of value to the medical student who cares to take time to read it in leisurely fashion, but nearly all the material of the book would gain greatly in effectiveness if presented by word of mouth.

Medicine. By A. E. Clark-Kennedy, M.D., F.R.C.P.; Second Edition; 1953. Volume I: The Patient and His Disease. Edinburgh and London: E. and S. Livingstone, Limited. 9½" x 6½", pp. 424. Price: 25s.

It is six years since Dr. Clark-Kennedy, Physician to the London Hospital and Dean of the Medical School, published the first edition of Volume I of this most admirable and instructive book, and in this revised edition all temptation to increase its length has been resisted.

It must be stressed that it is not a book in which specific diseases are described, but rather one that integrates the many branches of medical science and the effects of disease, functional and organic, upon the extremely complex human organism. It is as though the author is viewing a medical panorama, deftly and delicately integrating and describing the hereditary, mechanical, nutritional, chemical, infective,

neoplastic and degenerative processes, which in varying proportions play their part in the causation of disease.

The volume is again divided into six chapters, each one complete in itself, and all have been thoroughly revised in order to bring them more into line with Volume II, which was written at a later date than the first edition of Volume I.

The first chapter deals with the preclinical subjects, namely, energy and matter, life, organic evolution, heredity, development, constitution, consciousness and mind. The next two chapters give a full and interesting account of the patient and his symptoms, the classification of symptoms, the history and examination, mental symptoms and signs, subjective and physical symptoms, and an interesting method of routine examination of the patient. The symptoms and signs are interpreted in terms of alteration of structure or disturbance of function of the body and mind. Chapters IV and V deal with heredity and environment, the reactions of the body and mind to every kind of external stimulus, and the last chapter is a logical and philosophical discussion of the seven pathological processes affecting the human body, from the time of conception through the cradle to the grave. A complete summary is at the end of each chapter.

The subject matter is simply phrased and one is always aware of the underlying integration between the subjects discussed. Every student of medicine, whether physician or general practitioner, should read this book, in order to gain the necessary understanding of the patient-disease relationship, and those who read it will return many times for further knowledge and mental stimulation. Volume II on diagnosis, prevention and treatment need not be rewritten until further advances make it necessary.

Rawling's Landmarks and Surface Markings of the Human Body. Revised by J. O. Robinson, F.R.C.S.; Ninth Edition; 1953. London: H. K. Lewis and Company, Limited. 8½" x 5½"; pp. 110, with 38 illustrations. Price: 12s. 6d.

"RAWLING'S LANDMARKS AND SURFACE MARKINGS OF THE HUMAN BODY", revised in the ninth edition by J. O. Robinson, of Saint Bartholomew's Hospital, is substantially the same as previous editions with only minor alterations in the text and an extension of the section on ossification and epiphyses. The British revision of the B.N.A. terminology has been adopted, but older alternative classical names have also been supplied as an alternative. This is a standard well-recognized and highly respected work now brought up to date, and it contains a great wealth of detail in regard to surface anatomy as well as much information of general anatomical nature. Apart from the fact that certain figures are incorrectly labelled—for example, the *os coxae* is shown as the femur—it can confidently be recommended to all students and teachers of anatomy, and indeed to all, as a reference text-book for most common surgical exposures.

A Manual of Psychiatry. By K. R. Stallworthy, M.B., Ch.B.; Second Edition; 1953. Christchurch: N. M. Peryer, Limited. 7½" x 5", pp. 322. Price: 30s.

THE production of a second edition of Dr. Stallworthy's "Manual of Psychiatry" indicates the need for such a book and is proof of the success with which this book meets that need. The new edition is somewhat larger than the previous book and more adequately provides for the needs of the medical student. It is strictly orthodox in its approach to the subject, and in the way in which it deals with the various aspects. Unfortunately, as in most similar books, a disproportionate amount of attention is paid to the psychoses, which in practice are rare in comparison with the psychoneuroses, the latter being dismissed in sixteen pages. It is pleasing to note that the author eschews the usual rationalizations concerning alcoholism, regarding alcohol as merely the most common mode of drug addiction and the alcoholic as a drug addict.

As in the previous edition, the approach is on strictly "commonsense" lines, and the book may be recommended with confidence as an introduction to the study of the psychoses and their treatment.

Furneaux's Human Physiology. By William A. M. Smart, M.B., B.S. (London), M.R.C.S. (England), L.R.C.P. (London); New Edition; 1953. London: Longmans, Green and Company, Melbourne: Longmans, Green and Company. Nurses Edition. 7½" x 5", pp. 426, with 165 illustrations. Price: 13s. 6d.

A book which has been used by nurses and others for over forty years and which has gone through many editions obviously serves a useful purpose and gives the readers what they want. A new edition of "Furneaux's Human Physiology"

has been issued and it is better than its predecessors. As an introduction to human physiology Furneaux has for long been one of the best on the market. The new edition has been thoroughly revised by W. A. M. Smart and, within the limits of short treatment, is well up to date. Almost a third of the book is concerned with elementary human anatomy, no doubt a useful thing for the type of readers for whom the book is intended. A surprisingly large range of information is given in the 400 pages of this book, but the treatment is necessarily brief and in places not very satisfactory. For example, enzymes are considered only in relation to digestion and there is nothing about the part they play in cellular metabolism, nothing about the liberation of energy or the interrelationships of the metabolism of carbohydrates, fats and proteins. In spite of these and other defects the book is one which can be highly commended for those who wish to have a short introduction to human physiology.

Mammalian Germ Cells, a Ciba Foundation Symposium. Editor for the Ciba Foundation, G. E. W. Woistenholme, O.B.E., M.A., M.B., B.Ch., assisted by Margaret P. Cameron, M.A., A.B.L.S., and Jessie S. Freeman, M.B., B.S., D.P.H.; 1953. London: J. and A. Churchill, Limited. 8" x 5½", pp. 318, with 54 illustrations. Price: 30s.

THIS, the latest of the Ciba Foundation symposia, deals with mammalian germ cells. Forty experts in the physiology of mammalian reproduction and in the practical application of scientific discoveries in the reproductive field met for the presentation of papers and discussion. The experts covered a wide field of scientific effort and came from several European and American countries. Part I of the papers and discussions deals with spermatozoa, and Part II with ova. In the first part there are thirteen papers mostly concerned with the properties and keeping qualities of bull spermatozoa, but including a general paper by T. Mann on biochemical aspects of semen, one by J. MacLeod on human spermatozoa production in health and disease, and one by F. Lundquist on proteolytic enzymes in human semen. Most of the papers on bull spermatozoa are concerned with some aspect of artificial insemination of cows. The papers in Part II on ova are more varied in character from embryology of early changes in the fertilized ovum to post-coital tests in man in cases of infertility. The post-coital tests are fully described and the two papers on these are the only ones likely to have a wide appeal to medical readers. As would be expected from the prominence of the authors, the papers are all of high standard, but the whole book is very highly specialized and will be of most use to those interested in the technique of artificial insemination.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"The Medical Clinics of North America"; 1954. Philadelphia and London: W. B. Saunders Company. Melbourne: W. Ramsay (Surgical), Limited. Nationwide Number. 9" x 6", pp. 326, with 35 illustrations. Price: £6 per annum in paper binding and £7 5s. per annum in cloth binding.

This is a "nationwide number" and consists of a symposium on the efficiency of new drugs—there are 28 chapters.

"Please, Doctor: The Intimate Problems of Women", by Henry B. Safford, M.D.; 1954. London: W. H. Allen. Sydney: Walter Standish and Sons. 8½" x 5", pp. 200. Price: 15s.

Comprises chapters setting out imaginary interviews with women patients, mostly on gynecological subjects.

"Die Krankheiten der Endokrinen Drüsen: Unter Berücksichtigung ihrer Anatomie und Physiologie", by Herman Zondek; 1953. Basel: Benno Schwabe and Company. 9½" x 7", pp. 814, with 175 illustrations. Price: 72 francs (Swiss).

Intended for both the clinician and the scientific worker.

"Stone in the Urinary Tract", by H. P. Winsbury-White, M.B., Ch.B.Ed., F.R.C.S.Ed., F.R.C.S. (England); Second Edition; 1954. London: Butterworth and Company (Publishers), Limited. Sydney: Butterworth and Company (Australia), Limited. 10" x 7", pp. 352, with 144 illustrations, a few in colour. Price: 86s. 6d.

Based upon 866 "personal" cases of urinary calculus.

The Medical Journal of Australia

SATURDAY, JULY 17, 1954.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the *Quarterly Cumulative Index Medicus*. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

THE WORLD HEALTH ORGANIZATION.

THE work of the World Health Organization for 1953 has been described in the annual report of the Director-General to the World Health Assembly and to the United Nations. This report, which is a document of 190 pages, commences with an introduction by Dr. Marcolino Candau, the Director-General, who succeeded Dr. Brock Chisholm when he retired from the position. It will be remembered that in the report for 1952 Dr. Chisholm made an eloquent appeal in which he declared that man had to learn to live with himself and to get along with all others in a world in which dimensions and perspectives were radically changed. Dr. Candau states that the year 1953 must be viewed as still part of the early history of the World Health Organization and hence as a year of growth and adjustment and consolidation. He insists that the promotion of world health is only one part—although admittedly a vital and central part—of the general framework of all national and international efforts to improve social and economic conditions throughout the world. Dr. Candau believes that there is a growing awareness of the need to plan the promotion of world health in accordance with this view. An example of the interdependence of health, social, and economic conditions was furnished in these pages recently by reference to the condition of the aborigines in the Kimberleys district of Western Australia, described by Professor Ida Mann. It would be useless to try to improve the health of these aborigines unless something was done to change their general method and place of living. These considerations show that the work of the World Health Organization cultivates tremendous fields, and Dr. Candau is more than justified in his view that the Organization will have to use all its ingenuity to devise means through which the complex and slow-moving machinery of coordination and integration can be

perfected. To this end, more and more governments must be made to realize what is needed and to take part in the general organization. It is stated in the section dealing with the South-East Asia region that health services can be effectively developed only if the population feels the need for them, and some governments are seeking advice on the best means of stimulating the desire for improvement. A very sensible statement is made that programme planning for the future must take account of the total resources available and ensure that they are distributed in accordance with the needs of the region. At the same time, any pressure, national or international, must be resisted which may tend to accentuate unduly a particular line of health development. In other words, there is a danger of the provision of curative measures at the expense of long-term public health endeavour. It is in this aspect of activity in the several countries that the World Health Organization can strengthen the hands of those who are trying to do the work.

In the discussion on communicable diseases it is stated that the formulation of future policy and practice requires, *inter alia*, the assessment of work done, the adaptation of new control methods to mass application in the field, and the development of new measures for the control of diseases for which satisfactory methods are not yet available. Three conclusions may be drawn from the result of action taken in this sphere by the World Health Organization in the last five years. The first is that certain communicable diseases, of which smallpox is an outstanding example, can be controlled—all the necessary technical knowledge is available, and only national organization is required. Other examples are the enteric diseases such as typhoid fever, paratyphoid fever, dysentery and cholera, which can be controlled if countries are willing and able to grapple with sound sanitation practices. The second is that other communicable diseases can be brought to the level where they no longer present major public health problems. In all areas of the world except Africa and part of the western Pacific where certain questions of technical control have still to be answered, the elimination of malaria as a public health problem depends only upon organization and funds. The third conclusion is that internationally coordinated research can sometimes obtain quicker results than national research alone. An example is provided in the coordinated studies on hyperimmune serum for rabies, from the results of which it is now possible to state that hyperimmune serum followed by vaccine therapy should be used in all human cases of severe exposure, the serum being given within the shortest possible time after exposure. Several examples are given of the changes which have taken place in the principles and practice of communicable disease control in recent years: (i) The introduction of antibiotics has made control possible on a mass scale. Further investigations during the year with broad spectrum antibiotics have not essentially added to the possibilities of control. (ii) The insecticides with residual effect have proved their value in malaria and vector control in general, and specifically in the control of typhus. (iii) In the control of tuberculosis, the policy of the World Health Organization has been directed towards avoidance of the spread of infection. Micro-bacterial resistance and side effects impose caution and discrimination in the use of antibiotics. We read that

experience has confirmed the limited applicability of isoniazid. (iv) Although the value of γ globulin in controlling measles and infectious hepatitis is firmly established, care should be taken to avoid premature conclusions as to its usefulness on a large scale in poliomyelitis. Work on the development of effective poliomyelitis vaccines is still in an experimental stage. (v) In the control of leprosy, the use of sulphones for mass treatment is under investigation. Institutional isolation is no longer considered the only effective method of control: the finding of sufferers in the early stages of the disease and their ambulatory treatment is sounder public health practice. (vi) For bilharziasis, it is realized that although the newer molluscocides are promising, control by molluscocides is not sufficient in itself. (vii) The value of internationally coordinated research in the control of virus diseases has been proved—through it, the type responsible for the 1953 outbreak of influenza was quickly recognized. (viii) For the zoonoses, in addition to the chick embryo vaccine for rabies already referred to, brucellosis vaccines which seem promising are being developed and a field trial of their use in sheep and goats is under way.

The South-East Asia region comprises Afghanistan, Burma, Ceylon, India, Indonesia, Nepal and Thailand. The Western Pacific region includes Australia, Cambodia, China, Japan, Korea, Laos, New Zealand, the Philippines and Vietnam, together with several territories which are included provisionally. These areas will be of most interest to Australian practitioners, and it is stated that unless the tendency to undertake programmes for special ends is resisted, some of the mistakes made in the development of the public health services in Europe in the last 100 years will be repeated in the areas. Further, shortage of trained personnel in the areas is acute and assistance to institutions for training doctors, nurses and all categories of para-medical staff, especially in environmental sanitation, must remain one of the major functions of the World Health Organization. A vicious circle is shown to exist. Thus, a country may be acutely short of doctors and may ask the World Health Organization for lecturers to staff a new medical school, but it is not practicable for the Organization to do this for eight or ten years unless there is hope of training local counterparts. On the other hand, without the help of the Organization a new school cannot start and there is no hope of remedying the acute shortage of doctors. The proper point at which to break this vicious circle will have to be found. In the Western Pacific region, one of the greatest problems, we read, is the need for personnel trained in public health. In one country (the country is not named) with a population of over 1,000,000, there is only one qualified physician. In another, with a population of 3,500,000, the personnel trained in public health is no more than six. In several of the other territories, practically all the public health workers are brought from elsewhere. In contrast to this situation, there is stated to exist in some other countries a great wastage of trained manpower. Instead of being utilized in government service, many men trained in public health are compelled to enter private practice because the salaries offered by governments are so unattractive. Unfortunately, the countries on which these strictures are laid are not named. Reference is made to the seminar on mental health in childhood which was held in Sydney in August, 1953, the

seminar being conducted jointly by the Commonwealth Government of Australia and by the World Health Organization. The subjects covered were the characteristics of child health and development; the forces in the community that mould the infant into the cultural pattern of the home and society; the common behaviour problems of infants and young children, and the application of this knowledge to the programmes of child welfare, child health and education. An account of this seminar was published in THE MEDICAL JOURNAL OF AUSTRALIA on August 8, 1953. Those participating in the seminar came from Australia, China, Hong Kong, Japan, Malaya, New Zealand, the Philippines, Sarawak and Singapore, and also from Burma, Indonesia and Thailand.

Some idea of the enormous amount of work undertaken by the World Health Organization is set out in a section devoted to a list of projects completed and current in 1953. It is quite impossible to give any idea of the range of these projects or of their number. One fact of importance is that health education is implicit in the great majority of the projects undertaken, and not only in those designated as specifically dealing with health education. Work against diseases other than malaria or insect-borne diseases usually involves special measures, such as B.C.G. vaccination for tuberculosis and the organization of centres and case finding, as well as treatment facilities. An attempt is made in all work against particular diseases to secure the integration of the suitable special measures into the general health services of the country.

In this reference to the report of the World Health Organization's activities, merely a glance has been taken at them, but it will be sufficient to enable readers to gain some conception of the range of work that is covered. The World Health Organization is doing in the official public health sphere the kind of work which the World Medical Association is trying to do for those who practise medicine apart from medical departments. Both organizations should receive the careful attention of all medical practitioners.

Current Comment.

REPORT ON COMMUNICABLE DISEASES IN THE PACIFIC.

CURRENT statistical data on 45 diseases are presented in the Report for 1953 on Communicable Diseases in the Pacific Area, recently prepared by Loring G. Hudson. The incidence of each disease is summarized, figures being given for the first six months, for each of the second six months, and for the year. In most instances case rates per 100,000 population have been calculated, and for comparative purposes the incidence for 1952 has been included.

The report is a follow-up on the information provided through the Pacific Area Communicable Disease Information Service (PACDIS) which was developed by the author while he was executive secretary for the Pacific Science Council. The Pacific Area Communicable Disease Information Service is no longer issuing summaries, having been suspended at the close of 1953 through lack of funds.

Data are from the latest figures available through health departments of administrations in and about the Pacific. Reports from such official agencies as the South Pacific Health Service and World Health Organization have also been used. Though not all the diseases are notifiable in

each area, figures have variously been included from 52 countries and other territories.

Diseases summarized in the report with their identification numbers according to the sixth international revision are: amebiasis, 046; anthrax, 062; chickenpox, 087; dengue, 090; diarrhoea of newborn, 764; diphtheria, 055; dysentery (unclassified), 048; encephalitis, 082; filariasis, 127; glanders, 064.2; infective hepatitis, 092; hookworm, 129; hydatid disease, 125; influenza, 480-483; leprosy, 060; leptospirosis, 072; malaria, 110-117; measles, 085; German measles (rubella), 086; meningococcal meningitis, 057.0; mumps, 089; *ophthalmia neonatorum*, 033-765; ornithosis (psittacosis), 096.2; pneumonia, 490-493; poliomyelitis, 080; puerperal fever, 681; "Q" fever, 108; ringworm of scalp, 131; rabies in animals, human rabies, 094; salmonellosis including typhoid fever, 040-042; schistosomiasis, 123; shigellosis, 045; streptococcal infections including scarlet fever, 050-051; tetanus, 061; trachoma, 095; tuberculosis, 001-019; tularemia, 059; typhus (excluding epidemic), 101-107; undulant fever (brucellosis), 044; gonorrhoea, 030-035; syphilis, 020-029; other venereal disease, 036-039; whooping-cough, 056; yaws, 073. Not included are the six diseases designated as pestilential—cholera, plague, recurrent fever, smallpox, epidemic typhus, yellow fever—and reported regularly on a world-wide basis by the World Health Organization.

The author notes that an important objective of the original Pacific Area Communicable Disease Information Service programme—which this summary effectively continues—was to collect a reservoir of data on communicable disease incidence in the Pacific as a useful reference for public health officers, research workers and others. Less attention has previously been given to the geography of disease in the Pacific and such reports as this one help to fill a gap in the statistical knowledge.

It can be recognized that the figures given, even in official reports, do not provide the complete picture of a disease situation, but they do indicate the presence or possible lack of presence of a disease. Fluctuations reported through months and years, even though the exact number of cases may not be known, further provide a clue as to degree of presence. The trend of a disease either geographically or chronologically may also be traced.

The geographical pattern of influenza advance during 1953 in the mid-Pacific might, for example, be interpreted from the data, which revealed highest incidence for Tonga in the middle months of the year decreasing to no cases in December. Cases, however, increased in number toward the end of the year for neighbouring Niue and Cook Islands with the greatest number in December. To the northward Western Samoa had highest incidence in September and October, Fiji, strategically in the middle of this area, reported about the same number of cases each month. From Fiji aeroplanes call in at Tonga, the Cook Islands, and Western Samoa, as do steamships, regularly, providing opportunity for transporting disease.

The Gilbert and Ellice Islands, rather off the path of regular transportation, reported fluctuations in influenza, but, with the others mentioned, had a high case rate for the year. The Gilbert and Ellice peak periods may very likely have coincided with the visit by trading vessels, for it has been observed that in more isolated island groups at which ships touch irregularly there is usually an outbreak of upper respiratory infection following the arrival of a ship.

The expanding network of air transportation in the Pacific basin increases the hazard of introduction of disease from distant points and makes it important that health officers have data on disease situations in countries far removed from each other. Data from several key cities through which international airlines pass have been included by Hudson in his report, as it is now of value to know, not only whether a disease is present in a country, but also whether it is occurring in a city at which air travellers may be exposed to it.

One learns from the report that though there were 53 cases of meningococcal meningitis reported from Indonesia during 1953, none of these occurred in Djakarta, the point

at which international airlines touch down. On the other hand Auckland, which has about 20% of the population of New Zealand, reported 43% of the meningitis occurring in that country during 1953. As a further example of the usefulness of knowing the status of a disease in relation to an international transportation point city, we note that though 1220 cases of schistosomiasis were reported from Japan during the year, no cases were noted in Tokyo.

The report reveals a considerable increase in infective hepatitis morbidity for 1953 over 1952, especially in western North America. Part of this increase might be attributed to improved notification, as awareness of the presence of this disease has grown with the increase of interest in it by public health officials. An upsurge occurred in the New Hebrides with 102 cases notified, as against three in 1952.

Leptospirosis, which is attracting increasing attention also, was reported in 1953 by the following: Australia, 118; California, 4; French Oceania, 1; Hawaii, 2; Malaya, 5 (first six months); Manila, 1; New Hebrides, 1; New Zealand, 146; Oregon, 1; Ryukyu Islands, 11 (first ten months); Vietnam, 351. British Columbia, Costa Rica and Indonesia noted the disease as of rare occurrence. Australia, New Zealand and Vietnam reported considerably more cases in 1953 than in 1952, their 1953 rates per 100,000 population being 1.3, 7.1 and 1.5 respectively.

Malaria cases in the three Pacific coast States of the United States of America and in Australia occur primarily in returned military personnel. No indigenous malaria occurs in American Samoa, Western Samoa, Hawaii, Cook Islands, Niue, French Oceania, Canton Island, Nauru, Gilbert and Ellice Islands, Fiji and New Caledonia, cases, if reported from these territories, being imported.

Information from a special questionnaire initiated by Hudson when administering the Pacific Area Communicable Disease Information Service programme provides data for a section of the report showing diseases health officers have advised as not occurring in their areas. On the basis of this same questionnaire the degree of incidence—frequent, moderate, or rare occurrence—has been recorded for some diseases, rather than the number of cases.

According to the report the measles cycle showed increasing numbers of cases in Oregon, Washington and California. Oregon and Washington also had considerable increase in rubella. An outbreak of mumps occurred in the Cook Islands, and French Oceania reported increased numbers of cases. There was generally less whooping cough in the Pacific Islands during 1953.

More detailed information concerning poliomyelitis was given during 1953 by several health departments. Hawaii, Guam, California, British Columbia and Manila reported paralytic and non-paralytic cases separately. Cases in British Columbia rose from 592 in 1952 to 802 in 1953 for a rate of 68.5 per 100,000 of population, the highest recorded for the year among the areas included in the report. Washington and New Zealand showed definite decreases.

The highest rate of incidence of typhoid and paratyphoid fevers was in American Samoa, 84 cases being reported (466.6 rate) as against two cases in 1952.

Highest rates for tuberculosis in 1953 among areas listed in the report were: Manila, 11,570 cases, rate per 100,000 of population, 1113; American Samoa, 166 cases, rate per 100,000 of population, 902; Cook Islands, 99 cases, rate per 100,000 of population, 660; Gilbert and Ellice Islands, 242 cases, rate per 100,000 of population, 637; Japan, 505,246 cases, rate per 100,000 of population, 601; Hong Kong, 1871 cases, rate per 100,000 of population 594; Panama City, 594 cases, rate per 100,000 of population, 457.

Improvement of epidemiological intelligence from Indonesia is indicated through expanded geographical scope of that country's reporting during 1953.

Taken in conjunction with earlier summaries issued under the Pacific Area Communicable Disease Information Service programme, Hudson's 1953 summary is a beginning toward the assembling of the Pacific statistical picture on communicable disease. Seasonal fluctuations in incidence

of certain diseases may be observed. One year's, or even two years', data are certainly not sufficient for the drawing of definite conclusions, but such data are, as indicated, the beginnings. If means can be found to encourage continued assembling of these statistics during forthcoming years, the pattern of what to expect in disease trends and danger periods can be made much clearer for health officers.

The author of the report acknowledges his indebtedness to the School of Public Health and Tropical Medicine of the University of Sydney.

THE EFFECT OF THE PROLONGED USE OF PURGATIVES ON THE COLON.

A YEAR or two ago, in a discussion in these columns on the function of the colon, the story was told of an old lady who used to consult her doctor from time to time and tell him that her bowels had been teasing her; she would then ask which of numerous prescriptions which she had used in the past she should take to relieve her discomfort. We remarked at the time that her bowels were not teasing her, but that she was teasing them. At the same time, we quoted a statement from Best and Taylor's well-known text-book in which they credited Hurst with a quotation of Chevallier in 1819, that by purgatives "the whole intestinal tract is teased and pained for the defective action of that part of it which is most remote from their influence". Our discussion was a plea for increased realization of the value of habit and of habit training in the emptying of the bowel. A paper has recently been published by F. C. Jewell and John R. Kline which lends point to this plea. Jewell and Kline's article is entitled "The Purged Colon". These authors begin by quoting an article published in 1943 by N. Heilbrun in *Radiology*, Volume 41, page 486. Heilbrun described extensive radiological changes which had taken place in the colon because of excessive and prolonged use of irritant cathartics. Jewell and Kline add two cases and publish some interesting and convincing skiagrams. The first of their patients was a fifty-four-year-old woman who for thirty years had taken either eight cathartic pills or six ounces of milk of magnesia every day in order to relieve a feeling of discomfort and bloating in the upper part of her abdomen. As a result of this she had what she regarded as normal actions of the bowel. The second patient was a sixty-three-year-old woman who had taken laxatives every day for twenty years, but for fifteen years she had taken three tablets a day containing podophyllum, aloin, cascara and stramonium. In addition to these she took milk of magnesia and liquorice powder spasmodically. The patient described by Heilbrun had for twenty years taken a patent medicine containing phenolphthalein, aloin and podophyllum. The radiological picture produced in the first case of Jewell and Kline is as follows. The colon was dilated and atonic, the hepatic flexure had almost disappeared. No normal mucous membrane pattern was present. The changes were much more pronounced on the right side than on the left. The ileo-caecal valve was wide open and gaping, and at times the terminal part of the ileum was considerably dilated. The changes in the second case were similar. In their discussion on these cases the authors state that they can only speculate on the relationship between the changes seen in the colon and excessive purgation. They point out that aloin and podophyllum were common to the laxatives used in their two cases and to that described by Heilbrun, and that these are classed as irritant cathartics. As a matter of fact, Martindale's *Extra Pharmacopoeia* states that the action of aloes on the large intestine causes some pelvic congestion and that it should not be used when intestinal irritation is present. Jewell and Kline think that without doubt the prolonged and excessive irritation of the colonic mucosa keeps it oedematous and that this effaces the normal pattern. They think that fibrosis could well occur in the submucous structures, making the changes more or less permanent.

The point for the clinician is that the prolonged use of drugs which bring about such radiological changes is to be deprecated. It is to be noted that in Jewell and Kline's second case, treatment effected a considerable improvement, but that even after fifteen months an abnormal appearance of the mucous membrane of the right side of the colon remained. No information is given about the other case. In Heilbrun's case, the patient gave up the use of cathartics for only six months, after which she gradually returned to daily purgation. As would be expected, the colon did not lose its abnormal appearance, but the patient's general health remained good. An important diagnostic point is made by Jewell and Kline. They think that the radiological picture described by them is not rare, but rather is misinterpreted, probably being regarded as due to an old, burned out, ulcerative colitis.

METABOLISM OF IRON.

THERE are many points which need clearing up before we can fully understand the metabolism of iron in the body and the mechanism of its absorption and excretion. The discovery and isolation of ferritin, an iron protein compound, and the accumulation of evidence that it is the normal means for the storage of iron in the body gave hopes of a better understanding of absorption and excretion of iron. The excretion of iron from the body is very limited, the iron content being limited mainly by control of absorption from the gut. Only a small percentage of the iron taken into the gut is absorbed and the larger the dose the smaller the percentage absorption.

W. B. Stewart¹ has given details of experiments performed to give a better understanding of the mechanism of controlled absorption. Most of the iron absorbed is taken up by the stomach and small intestine, but there are no data available about the relative amounts of absorption in the different parts of the tract. In iron deficiency there is a considerable increase in the percentage of iron absorbed, but there is no increase in the brief period of anaemia following a single large bleeding. It has been suggested that the level of iron in the plasma may be a factor in controlling absorption. To test this point iron was injected intravenously into dogs over a period of several hours. During this period a test dose of radioactive iron was administered orally. It was found that absorption was not inhibited by the high plasma levels of iron, either in the normal dog or in the iron-deficient dog. The second possibility is that iron absorption is controlled by the iron content of the mucosal cells of the alimentary tract. Large amounts of iron were fed to iron-deficient dogs. Several hours later, after the iron had passed into the large intestine, a small test dose of radioactive iron was given orally. The absorption was found to be depressed. The apparent block persisted for less than twenty-four hours. It would appear that factors other than the "mucosal block" may also be important. Thus in pernicious anaemia, in aplastic anaemia and in human cases of hemolytic anaemia iron absorption is increased. Presumably in these cases there is no reduction in the iron content of the mucosal cells, at any rate there is no overall deficiency of bodily iron. Deficiency of body copper suppresses iron absorption. It would seem that under ordinary circumstances the intestinal mucosal cells are capable of regulating the absorption of iron and that this function is somehow related to the amount of iron present in the cells and probably to the amount of ferritin present. In the face of prolonged anaemia or severe dietary restrictions, however, this mechanism fails and large amounts of iron can pass into the body. The relation of transfusion siderosis to hemochromatosis was also studied. It was found that the distribution of hemosiderin in transfusion siderosis can mimic that seen in hemochromatosis. This may mean that the distribution of iron-containing pigment is not specific for any particular disease, but rather is related to the quantity present and the time during which it has been present. In answer to a question in the dis-

¹ *Radiology*, March, 1954.

² *Bull. New York Acad. Med.*, October, 1953.

cussion the author states that he has never seen any convincing data that hydrochloric acid in the stomach aids the absorption of iron. Indeed patients with pernicious anaemia, who should not have any acid in their stomachs, have absorbed large quantities of iron.

THE CHEMICAL PATHOLOGY OF THE CAROTENOIDS.

THAT group of pigments called carotenoids, which includes carotene, lycopene and their related hydroxyl compounds, the xanthophylls, occurs extensively in organic Nature. Carotene is perhaps the most widely known colouring agent in the vegetable world, being familiar in a massive way in the blossom of wattle, broom and gorse, and displaying high concentration in carrots, tomatoes, pumpkins and swedes; but it is also present, with other members of the group, in all or almost all green parts of plants. The pale colour of butter when the cow is fed on dried—that is, carotene-free—fodder is familiar, and the yellow colour of animal fat, so noticeable in the roast, is another example. In the early days of vitamin research some uncertainty existed concerning the relationship between vitamin A and carotene. It was held that carotene was quite distinct from the vitamin and unable to take its place in metabolism, but soon it was realized that in food-stuffs there was a definite correlation between richness of yellow colour and concentration of vitamin A. We now know that some carotenoids, particularly β carotene, are converted into vitamin A when they traverse the gut wall. Alpha carotene, by the way, is distinguished from β carotene by a replacement of one of the two symmetrically disposed carbocyclic groups producing optical activity, the β form being inactive. The two conditions necessary for the formation of vitamin A are, first, that the carotenoid should be absorbed from the lumen of the gut (and in this absorption bile is necessary), and second, that the enzyme system responsible for the change should be intact and functional. Strange to say, investigations directed towards some possible hormonal control, both of absorption and of conversion, have pointed to the thyroid as the responsible endocrine organ. In the past many attempts have been made to correlate blood carotenoid concentration with various pathological conditions, but T. W. Goodwin,¹ in the Department of Biochemistry of the University of Liverpool, holds that such a correlation does not exist. Excess of carotenoids in the food can lead in the human being to yellow pigmentation of the skin; but that is not associated in any way with a pathological state and disappears when the diet becomes normal again. One case has been recorded in which carotenemia was produced or accentuated by the inability of the patient to convert carotene into vitamin A.

COCCIDIOIDOMYCOSIS AND CLIMATE.

In the latter part of the nineteenth century and the early years of the twentieth, climate was regarded as a very important factor in the aetiology and treatment of many diseases. Later, with one of those pendulum swings so common in the history of medicine, as of other human activities, this influence of climate was unseated and even ridiculed. Today, granted that climate in the widest sense constitutes the whole physical environment, we know that there are many ills in which it plays a salient part. These diseases, according to Roger Egeberg,² range from rheumatic fever through malaria and hookworm to goitre and thyrotoxicosis. His remarks on climate are prompted by a study of coccidioidomycosis, a disease that is "delimited" by certain very definite climatic conditions. This disease should be of interest to Australians, for in these days of air travel, California is a near neighbour of ours, and, what is more, the climatic conditions which favour the spread of coccidioidomycosis are very like those in some parts of Australia. Egeberg writes:

As is well known, coccidioidomycosis is endemic in the south San Joaquin Valley, the westerly slopes of the lower California coast range, and in spotty areas south of the Tehachapies. It is also found in pockets in Southern Utah and Nevada. There is a large area of endemicity in Southern Arizona. New Mexico has endemic coccidioidomycosis, and it is also present in western Texas. Outside of this country, it is found in Sonora and Chihuahua, Mexico, in the Chaco of Argentina, in the highlands of Venezuela, and probably in many other areas of the world where the soil, the temperature, the precipitation, and the other factors combine to make an environment in which *Coccidioides immitis* can flourish.

The endemic areas are described as "semiarid". The causal organism seems to require great summer heat, weeks or months of temperatures rarely getting down below 100° F. It does not flourish in areas where the winter is steadily cold. A seasonal rainfall of ten to sixteen inches a year suits it very well, with long dry spells, a soil that can be carried about as a fine dust and winds to scatter that dust. It is possible that certain animals or certain plants are also necessary in this environment; this is still a moot point, and it may explain why the disease has so far not been reported in Australia. One cannot help thinking that large regions of Australia are very suitable, climatically, for the reception of *Coccidioides immitis*. In view of this, the diagnosis should be considered in cases of obscure pulmonary disease or of generalized toxic manifestations with no other discoverable cause. The diagnosis is made by culture of the fungus, *Coccidioides immitis*, by skin testing with coccidioidin and by complement-fixation tests; these two last-mentioned methods, unfortunately, do not always give clear-cut results, so that culture is the important criterion.

NUCLEATED RED BLOOD CELLS IN PERIPHERAL BLOOD.

NUCLEATED red blood corpuscles are not normally found in the peripheral blood of man except in the fetus and newborn infant. When they do occur, they are associated with some pathological condition. An abnormal demand for red blood cells produces an outpouring into the peripheral blood of all cellular elements. The specific stimulation will bring an increase in young red blood cells and reticulocytes increase in number and, in severe cases, nucleated blood cells appear.

S. O. Schwartz³ has studied the conditions which lead to the appearance of nucleated red cells because of the remarkably high incidence of death noted in a group of patients in whom this phenomenon was observed. The records were reviewed of 1496 cases in the Cook County Hospital, Chicago, in which nucleated red corpuscles had been noted. Haemorrhage was the leading cause of nucleated red corpuscles in the peripheral blood and the most frequent lesion was a duodenal or gastric ulcer. Among the 361 patients in this group there were 36% of deaths. Other conditions in which nucleated corpuscles were found were pernicious anaemia with 29% of deaths, carcinoma with 61% of deaths, cardiac conditions with 66% of deaths, leucæmia and related conditions with 76% of deaths, infections with 57% of deaths, hæmolytic anaemia with 20% of deaths, miscellaneous with 50% of deaths—48% of deaths in the 1496 patients. It is evident that the finding of nucleated red corpuscles in the peripheral blood is generally a sign that the prognosis is poor. All complicated cases and, in particular, any in which the total red cell count was below 3,500,000 per cubic millimetre or in which hæmoglobin levels were below 10.9 grammes per 100 millilitres (70%) were eliminated, as also were cases in which were both cardiac conditions and uræmia. The relatively large number of deaths in the infectious group, particularly from pneumonia, was unexpected. Anoxia is evidently a dominant influence here as it is in the group of cardiac conditions.

¹ *Biochem. J.*, May, 1954.

² *Am. J. M. Sc.*, March, 1954.

³ *J.A.M.A.*, April 17, 1954.

Abstracts from Medical Literature.

PHYSIOLOGY.

Blood Volume and Altitude.

M. TERZIOGLU AND N. TUNA (*J. Appl. Physiol.*, January, 1954) report that in an investigation of the hematological variations at mid-altitude, the blood volumes of seven experimental subjects (twenty-one to twenty-nine years of age) were determined before, twice during and after a ten-day sojourn at Uludag (1850 metres). The plasma volume remained practically unchanged during the period at mid-altitude. Nine to ten days after descent to sea level, the plasma volume increased to 6.9% over the initial value indicating a haemodilution. The total blood volume had increased 7.5% by the end of the ten-day period at mid-altitude. The authors state that since this increase occurred at about the same time as other hematological variations previously observed, and since it was mainly due to an increase in total cell volume, there can be no doubt of the occurrence of a true hematopoiesis at mid-altitude. Nine to ten days after the return to sea level, the total blood volume was greater than the pre-expedition value, but less than the final mid-altitude value. This relatively high blood volume resulted chiefly from the increase in plasma volume, since the total cell volume was practically normal. By the end of the ten-day period at mid-altitude, the total amount of hemoglobin was 10.2% above pre-expedition values and the total cell volume was 17.8% above them. On return to sea level, the total amount of circulating hemoglobin remained at mid-altitude values, while the cell volume decreased. This confirmed the authors' previous conclusion that the colour index tends to be raised after descent from mid-altitude.

G. R. FRYERS (*Am. J. Physiol.*, November, 1952) reports a study of the effect on the total red cell volume, plasma volume and hemoglobin content in rats of reducing the barometric pressure to the equivalent of 15,000 feet altitude for from three to one hundred days. Fully acclimatized rats have been studied at 8000, 15,000 and 20,000 feet equivalent altitudes. A great increase in total red cell volume and total hemoglobin content was demonstrated. A steady state for total hemoglobin content and red cell volume per 100 grammes of body weight at 15,000 feet was reached within ten days of lowering the barometric pressure. The total plasma volume was reduced to the same extent by exposure to altitudes of 15,000 and 20,000 feet. The rate of formation of new red cells was observed to be increased to 5.9 times normal during the development of acclimatization. It is unlikely that the observed rate of increase of total hemoglobin content would continue above 23,000 feet because of the very large blood volume required.

Mean Red Cell Life with Reduced Barometric Pressure.

G. R. FRYERS AND N. I. BERLIN (*Am. J. Physiol.*, November, 1952) report that the life span of red blood cells produced by rats acclimatized to high altitudes is normal. Of the red cells produced

during the initial phase of rapid erythropoiesis resulting from exposure of rats to simulated high altitude conditions, at least some have a shorter than normal life span. The authors state that, though not conclusive, the evidence presented does not support the concept that increased destruction of red cells occurs on returning an altitude-acclimatized animal to sea level.

Blood Glucose Level and Food Intake.

J. MAYER AND M. W. BATES (*Am. J. Physiol.*, March, 1952) report that in normal animals, under carefully controlled conditions, two daily subcutaneous injections of glucose or fructose and adrenaline, producing hyperglycemia of relatively short duration, caused a statistically significant decrease in food intake, even when the caloric equivalent of the injected glucose and fructose was taken into account. Conversely, insulin-induced hypoglycemia was accompanied by a significant increase in food intake even if the doses used were small enough to maintain the blood level at physiological fasting levels. Injections of substances with no effect on blood glucose, namely, sucrose and fat, had no such effect on food intake. In animals made unable to regulate their blood sugar level by hypophysectomy followed by alloxan treatment, the effect on food intake of prolonged hyperglycemia induced by intraperitoneal glucose administration was even much more drastic, causing considerable decrease. These facts suggest the possibility of a "glucostatic mechanism of regulation of food intake", whereby blood sugar would be the normal stimulus to which hypothalamic or other receptors respond. The application of this concept to the hyperphagia of uncontrolled diabetes is discussed.

Human Salivary Buffering Rate.

R. H. OSTER, L. M. PROUTT, E. R. SHIPLEY, B. R. POLLACK AND J. E. BRADLEY (*J. Appl. Physiol.*, December, 1953) report that a normal unstimulated salivary pH was determined with an electrometer and an in-situ electrode within the oral cavity. The average normal pH of 195 subjects was 5.97 with a range of 5.73 to 6.15. Greater accuracy in measurement of unstimulated salivary pH than has been reported in the literature is indicated by the narrow range and normal distribution of values. Temperature control and absence of carbon dioxide loss from saliva probably contribute to a hydrogen ion concentration higher than that usually found. The rate of buffering response by salivary secretion after drinking carbonated beverages of average pH 3.0 was quite rapid. The pH shift toward alkalinity over the two-minute period showed a significant difference (3.4 times the standard error) between the slope of the curve when a beverage was ingested and the slope of the control curve after water ingestion. The stimulus to salivary secretion is attributed to both the flavour and the acidity of the beverages used. When the buffering response to drinking carbonated beverages was plotted against time, 52.8% of the total group reacted positively (that is, the salivary pH increased to or above their average normal) within twelve seconds; 96% had buffered positively within the two-minute period. One exception to

the buffering response was found to occur in heavy smokers, who showed a consistent 20% deficiency in the rate of change toward alkalinity when the individuals smoked a pack of cigarettes (or more) per day. The authors state that the nicotine depression of salivary reflex, by inactivation of the taste receptors is the logical reason for this deficiency.

Sleep Characteristics of Infants.

N. KLEITMAN AND T. G. ENGELMANN (*J. Appl. Physiol.*, November, 1953) report that from protocols kept by the mothers on specially designed forms and continuous actograms, the incidence and duration of sleep were followed in 19 infants, from the third to the twenty-sixth week of life, under family home conditions. Even the earliest records revealed a diurnal disparity, the mean group duration of night sleep being 8.4 hours, as against 6.4 hours for day sleep. The adjustment of the sleep-wakefulness pattern manifested itself mainly in a progressively more pronounced diurnal periodicity, culminating in one long unbroken period of night sleep and short morning and afternoon naps. For the several infants observed, the rate of activity at the onset of sleep decreased gradually, though not always steadily, to zero. During awakening, activity increased more abruptly than it had previously decreased and showed fewer fluctuations or a more steady rise. Eye movements gradually subsided during the change from wakefulness to sleep. The complete cessation of ocular movement (as seen directly) lasted for a less variable period, which was approximately twenty-three minutes for the several infants observed. On the basis of eye movements alone, awakening appeared to be more abrupt than the onset of sleep. The afternoon naps or long night sleep stretches of these infants were not homogeneous, but appeared as rest-activity cycles which had a duration of considerable range, with a mean value of about one hour. The cycles were modified and often distorted by feedings, play, noise et cetera. At night, the infants generally proceeded from one cycle to the next without any great outburst of activity.

BIOCHEMISTRY.

Bile Acids.

I. D. P. WOOTTON AND H. S. WIGGINS (*Biochem. J.*, September, 1953) have analysed human autopsy bile specimens by chromatography and infra-red spectrometry and shown that chenodeoxycholic acid is an abundant constituent, while lithocholic acid is scarce. There is no obvious connexion with age or the presence of carcinomatosis. It is still uncertain whether this finding is specific to the human species or is part of a common mammalian plan.

Vasopressin and Oxytocin.

S. P. TAYLOR et alii (*J. Biol. Chem.*, November, 1953) have examined high potency preparations of beef vasopressin by the method of zone electrophoresis on supporting media of filter paper, starch and glass beads. A single biologically active component was observed possessing pressor, antidiuretic and oxytocic activity. Beef vasopressin was shown to be an ampholyte with an iso-electric point at an approximate

pH of 10.9. Vasopressin and oxytocin were readily separated by electrophoresis, and additional evidence was obtained for the inherent oxytocic activity of vasopressin.

Potassium.

R. P. GEYER *et alii* (*J. Biol. Chem.*, November, 1953) have studied the metabolism of octanoic acid-1- C^{14} by rat liver and kidney slices with the use of incubation media in which potassium or lithium was varied at the expense of sodium. Both potassium and lithium greatly increased the metabolism of octanoate by liver slices, and this increase was reflected predominantly in the radio-acetoacetate. The ratio of radio-acetoacetate to radio-carbon dioxide was below one when an all-sodium buffer system was used and above three when potassium or lithium was present. Lithium decreased $C^{14}O_2$ production by the liver. Octanoate and pentanoate gave similar ratios when an all-sodium system was used. Potassium caused an increase in both $C^{14}O_2$ and radio-acetoacetate from pentanoate. Potassium but not lithium caused an increase in octanoate metabolism by kidney.

Plasma Steroids.

I. E. BUSH AND A. A. SANDBERG (*J. Biol. Chem.*, December, 1953) have shown that the major free adrenocortical steroid in human plasma, with or without ACTH treatment, is 17 α -hydroxycorticosterone. Corticosterone was rarely found in extracts of human plasma. The ratio of 17-hydroxycorticosterone to corticosterone was shown to be ≥ 5 in all the untreated subjects and ≥ 4 in all the subjects treated with ACTH. In many cases this ratio was ≥ 10 . In some subjects the ratio changed during ACTH treatment.

Placenta.

C. A. VILLEE (*J. Biol. Chem.*, November, 1953) has studied *in vitro* the utilization and production of glucose, glycogen, pyruvate and lactate by slices of human placenta aged from six weeks to term. He states that as gestation proceeds there are a great decrease in the glycogen content of the placenta and an increase in the ratio of dry to wet weight. As gestation proceeds, there are decreases in the rates of oxygen consumption, pyruvate production and utilization, glucose utilization and production, and lactate production. Early in gestation the placenta has a pronounced ability to synthesize glycogen *in vitro*. This begins to decrease at ten to twelve weeks, decreases steadily through gestation and is absent at term. Placental slices are unable to utilize glycerol and apparently lack the enzyme to phosphorylate glycerol. Insulin increases glucose utilization and glycogen synthesis, but has no effect on oxygen consumption or lactate production. Cortisone or aqueous adrenal extracts decrease both oxygen and glucose utilization. These observations provide a firm biochemical basis for the concept that the placenta is less active metabolically at term than earlier in pregnancy.

C. A. VILLEE AND D. D. HAGERMAN (*J. Biol. Chem.*, December, 1953) have shown that oestradiol, added *in vitro*, stimulates the oxidative metabolism of young and term placental slices, and of term placental homogenates incubated in a variety of substrates. Evidence is presented which indicates that a

site of action for these hormone effects lies in the tricarboxylic acid cycle between citrate and α -keto-glutarate.

Lactose.

G. W. KITTINGER AND F. J. REITHEL (*J. Biol. Chem.*, December, 1953) have obtained a soluble protein from lactating mammary glands of guinea-pigs which will catalyse the synthesis of lactose from glucose-1-phosphate and starch. Starch- C^{14} , when incubated with mammary gland homogenates, was converted in part to lactose- C^{14} in the absence of added ATP.

Histamine.

R. W. SCHAYER *et alii* (*J. Biol. Chem.*, December, 1953), using inhibitors *in vivo*, have shown that in all the species tested there are two histamine-metabolizing enzymes. One is diamine oxidase; the other is not yet characterized. *In-vivo* studies, paralleling those customarily performed in enzymes *in vitro*, are reported. They deal with the effect of concentration of histamine on its rate of metabolism and with the nature of the inhibition produced by diamine oxidase inhibitors. Cortisone produces an alteration of histamine metabolism. No inhibition of histidine decarboxylase in intact mice was observed after treatment either with cortisone or with two *in-vitro* inhibitors.

Cholic Acid.

I. ZABIN AND W. F. BARKER (*J. Biol. Chem.*, December, 1953) administered labelled cholesterol prepared biosynthetically from methyl-labelled acetate to a dog with a bile fistula. The activity found in the carboxyl carbon of the cholic acid isolated from bile proved that cholesterol was converted to cholic acid by removal of no more than three carbon atoms, carbons 25, 26 and 27. An identical pattern of isotope distribution was obtained when methyl-labelled acetate was the direct labelled precursor.

Freezing.

V. S. PORTER *et alii* (*J. Biol. Chem.*, December, 1953) have studied the effect of freezing with dry ice on the capacities of washed liver homogenates to oxidase most substrates. Under optimal conditions, only seven out of fifteen oxidative activities of rat liver showed recoveries of better than 50% after freezing. Oxidative phosphorylation stopped completely after freezing. Slow freezing was less destructive than fast freezing. Almost all oxidative activities showed some recovery after freezing or addition of pyridine nucleotides. Freezing in sucrose solution prevented most of the destructive effects. It is suggested that the effect of freezing may be a mechanical one in which essential elements of structure in enzyme-bearing particles are disrupted by physical forces of shear between ice crystals.

Thyroid.

D. M. FAWCETT AND S. KIRKWOOD (*J. Biol. Chem.*, December, 1953) have studied the formation of free moniodotyrosine in copper-supplemented and tyrosine-supplemented homogenates of thyroid tissue. They state that this synthesis is the result of the action of an enzyme that carries out a single-step iodination of tyrosine with elemental iodine. The enzyme will accept 3-fluorotyrosine to produce 3-fluoro-5-iodotyrosine. The function of

cupric ion is to produce elemental iodine non-enzymatically from iodide ion. This iodine is then accepted by the iodinating enzyme. The cupric ion can be replaced by either ferric ion or hydrogen peroxide, either of which provides elemental iodine. The aromatic antithyroid substances, *p*-amino-benzol acid, sulphanilamide and phenol, inhibit the action of this enzyme at concentrations comparable to those at which they inhibit the synthesis of thyroxine in gland slices. It is probable that this enzyme reaction is the locus of action of this type of inhibitor.

Vitamin D.

H. STEENBOCK AND S. A. PHILLIP (*J. Biol. Chem.*, December, 1953) have demonstrated that the citrate content of blood, bone, kidney, heart and the small intestine of rats on normal or low phosphorus rachitogenic rations was increased by physiological doses of vitamin D. It did not affect liver citrate. Comparable to changes in urinary citrate content, the tissue citrate level was highest in rats kept on a low phosphorus ration, but vitamin D produced the biggest increase with phosphorus-containing rations. Vitamin D was as effective in increasing blood and bone citrate contents in the presence of dietary bicarbonate as in its absence, although bicarbonate itself had little or no effect. It appears that the increase in urinary citrate level is a reflection of increased accumulation of citrate in certain tissues.

SURGERY.

Carcinoma of the Floor of the Mouth.

STANFORD CADE (*Brit. J. Surg.*, November, 1953) states that the treatment of carcinoma of the floor of the mouth varies with the degree of local extension of the primary lesion. Radiotherapy is the method of choice in early localized lesions. For this, radium and radon needles have been used, but the more recently introduced platinum-shielded radioactive tantalum wire permits an easier and more accurate distribution of the radioactive source in the confined space of the floor. When the disease has spread to the surrounding muscles, radium should be followed by local diathermy destruction of the tissue at an interval of four to eight weeks after irradiation. When the lesion has extended to the gum mucosa, but the bone is clinically and radiologically intact, telerradium should be used in preference to needles. If bone invasion by an epithelial cancer of the floor of the mouth occurs, surgical ablation is the method of choice unless one of the criteria of inoperability is present. These criteria are (i) spread of the disease posteriorly to the pharyngeal mucosa or pharyngeal part of the tongue, (ii) lymph glands adherent to the main vascular sheath, (iii) oedema of the subcutaneous tissues, and (iv) gross involvement of the soft tissues in the submandibular or submental areas. In these cases palliative radiotherapy and local diathermy may provide some relief. Block dissection of the lymph glands of the neck is advised if the primary growth is controlled and the glands are enlarged but operable. With these methods of treatment 24 out of 89 patients survived for five years or more.

British Medical Association News.

ANNUAL MEETING.

THE annual meeting of the Western Australian Branch of the British Medical Association was held at Tintern Lodge, Perth, on March 13, 1954, Dr. A. L. DAWKINS, the President, in the chair.

MINUTES.

The minutes of the previous annual general meeting, which had been distributed among members, were confirmed.

ANNUAL REPORT OF COUNCIL.

The annual report of the Council for the year ended March 13, 1954, was received and adopted. The report is as follows:

The President and members of the Council of the British Medical Association have much pleasure in presenting the fifty-fifth annual report of the branch for the year ending March 13, 1954.

Membership.

The membership of the Branch has increased during the twelve months ending December 31, 1953, by a net amount of 17 as follows:

Gains were:	
New members	25
Transferred from other Branches ..	38
	— 63
Losses were:	
Transferred from this Branch	32
Resignations	6
Membership lapsed	1
Deaths	7
	— 46
	17

Membership of Branch = 522.

Obituary.

With deep regret we record the deaths of the following members which occurred during the year: F. S. Butler, V. P. A. Eville, A. Juett, H. S. Lucraft, L. W. Martin, K. E. McGinn and J. H. Young. The sincere sympathy of the Branch is extended to the families of these late members.

Meetings.

In addition to the annual meeting, eight general meetings of the Branch were held. A special meeting was held in February at which Dr. E. G. Saint addressed the profession on "The Clinical Research Unit at the Royal Perth Hospital: Plans and Prospects."

The subjects of the meetings were as follows:

April: "The Management of the Diabetic Patient", Dr. Lawrence.

May: Clinical demonstration, Repatriation General Hospital.

June: "The Function of the Psychologist in the Modern Community." Invitation to Western Australian Branch of the British Psychological Society.

July: Medico-legal meeting.

August: General practitioner clinical evening; Dr. R. A. J. Stanton, Dr. H. C. Pope, Dr. J. Lyon Johnson.

September: "Pre-Natal Pediatrics", Professor Dods.

October: Clinical evening under direction of Dr. E. G. Saint.

November: "The Coroner and the Medical Profession", Mr. Rodriguez.

Council Meetings.

Fourteen meetings of the Branch Council were held. Record of attendance is as follows:

Dr. A. L. Dawkins, President	13
Dr. J. H. Stubbe, Vice-President	13
Dr. F. W. Carter, Permanent Vice-President ..	4
Dr. J. L. Day, Past President	9
Dr. D. D. Keall, Honorary Treasurer	14
Dr. G. N. Barsden, Honorary Secretary	14

Dr. C. W. Anderson, Honorary Assistant Secretary	12
Dr. H. L. Cook, Federal Representative	10
Dr. D. E. Copping, Federal Representative, Press Liaison Officer	13
Dr. B. W. Buttsworth, Chairman of Convocation ..	13
Dr. B. O. Bladen, Chairman of Contract Practice ..	4
Dr. L. I. Henzell, Commissioner of Public Health ..	7
Dr. D. M. Clement, Councillor	13
Dr. B. C. Cohen, Councillor	12
Dr. S. E. Craig, Councillor	12
Dr. J. A. Gollan, Councillor	9
Dr. A. B. Wilson, Councillor	9

Office-Bearers and Councillors.

The following members have been elected as office-bearers for 1954:

President: Dr. J. H. Stubbe.

Vice-President: Dr. B. W. Buttsworth.

Honorary Treasurer: Dr. D. D. Keall.

Honorary Secretary: Dr. C. W. Anderson.

Honorary Assistant Secretary: Dr. D. M. Clement.

Chairman of Convocation: Dr. B. W. Buttsworth.

The following members have been elected as the five ordinary members of Council for 1954. No election was necessary as only five nominations were received for the five vacancies: Dr. A. R. Bean, Dr. B. C. Cohen, Dr. S. E. Craig, Dr. R. S. W. Thomas, Dr. A. B. Wilson.

At this juncture we would like to express our warm appreciation of the work of the retiring councillors.

Federal Council.

Dr. Leigh Cook and Dr. Donald Copping represented the Western Australian Branch on the Federal Council during the past year, and on behalf of all members we would like to express to them our very sincere appreciation of their untiring efforts during a very strenuous year. We would like to take this opportunity of welcoming Dr. C. W. Anderson, who with Dr. Copping has been elected Federal representative for 1954.

Dr. Leigh Cook's resignation as Federal representative was accepted with profound regret. The Council in particular and the Branch in general are profoundly grateful for all the work he has done on their behalf, particularly since he became a Federal representative five years ago. The Council is very conscious of how dependent it was on his knowledge and experience.

Library.

The library has suffered a severe blow with the death of Dr. H. S. Lucraft, who was the Chairman of the Committee. Miss Hagen was appointed in place of Miss Bryan who tendered her resignation from the staff during the year. The Medical Board has made a further grant of £750.

Representation.

The Branch was represented by the following members at various meetings and conferences during the year 1953.

Council of the British Medical Association: Dr. Miles Formby.

Federal Council of the British Medical Association in Australia: Dr. Leigh Cook, Dr. D. E. Copping.

University Advisory Board in Medicine: Dr. H. H. Stewart.

Australasian Medical Publishing Company, Limited: Dr. F. W. Carter.

Editor, "Medical Journal of Australia": Dr. P. C. Thomas.

State Health Council: Dr. B. O. Bladen, Dr. H. L. Cook, Dr. A. B. Webster, Dr. M. F. Williams.

Nurses' Registration Board: Dr. J. A. Love, Dr. L. E. LeSouef.

Dental Board: Dr. I. O. Thorburn.

College of Dental Science: Dr. I. O. Thorburn.

Workers' Compensation Act—Underwriters' Joint Committee: Dr. N. H. Robinson, Dr. H. M. Hill, Dr. G. B. Maitland.

Saint John Ambulance Association: Dr. A. L. Dawkins.

Optometrists' Registration Board: Dr. D. D. Paton.

Sec. Education (Parents and Citizens' Association): Dr. I. O. Thorburn.

Protection of Practices: Dr. F. W. Carter.

National Health Service Disciplinary Committee: Dr. F. W. Carter, Dr. H. L. Cook, Dr. H. J. Gray, Dr. H. S. Lucraft.

Public Health.

We wish to take this opportunity of thanking Dr. Linley Henzell, Commissioner of Public Health in this State, for his cooperation and efforts on our behalf during the past year and to assure him of this Association's cooperation in the future.

Australasian Medical Publishing Company, Limited.

Dr. F. W. Carter has been the director nominated by this State for the past twelve months and, as may be expected, has carried out the necessary duties in his customary competent manner. The Branch Council is most appreciative of having such a zealous representative.

Post-Graduate.

This committee under the capable chairmanship of Dr. B. A. Hunt, ably assisted by Dr. Lamb, had a very successful year and its activities are the subject of a separate report.

Publicity.

As a result of the work done by our Press liaison officer, Dr. D. E. Copping, better relations and closer liaison between the Council and the managing editors of all papers has been maintained to the mutual advantage of both sides. We take this opportunity of thanking Dr. Copping for his very commendable efforts and interest on our behalf.

Contract Practice.

This committee has for the first time in many years had somewhat of a breathing space as with the introduction of the national health scheme there has been considerable reduction in the need for its activities on behalf of the membership. Nevertheless the work performed has been done with satisfaction and promptitude.

Social.

The medico-legal golf match was played off on Wednesday, September 30, at Royal Perth Golf Club. The medical men defeated the lawyers again, the four-ball event being won by Dr. A. Lamb and Dr. J. Calder. The B.M.A.C. trophy for the best individual bogey score was won by Mr. F. W. Leake, Q.C., with a score of all square. Fifty members from the two professions attended the dinner at the club house in the evening.

Convocation.

Two meetings of convocation have been held during the period under review. The main items for discussion were: National Health Service, Medical Benefits, Pharmaceutical Benefits, Stabilization of Fees, Workers' Compensation Schedule, Pensioner Medical Service and Hospital Policy.

Staff.

The Council wishes to express to the office and library staff its sincere thanks for their cooperation and help to the Association during the year.

FINANCIAL STATEMENT.

The financial statement for the year ended December 31, 1953, was received and adopted. The financial statement is published herewith.

INDUCTION OF PRESIDENT.

Dr. A. L. Dawkins introduced the President for 1954, Dr. J. H. Stubbe, and vacated the chair in his favour. Dr. Stubbe thanked the members for his election.

RETIRING PRESIDENT'S ADDRESS.

Dr. A. L. Dawkins delivered his retiring President's address. He said at the outset that he could not refrain from commenting on the toll which the Grim Reaper had taken of the profession during the year. Harry Lucraft had done a great deal during previous years as a member of various committees of the Branch, and at the time of his death, he had been working on a photographic record of past presidents. His outstanding and recent work had been carried out for the library, which had grown in size and in dignity under his care. His ready help for the Association would be surely missed. J. H. Young had not been so active in Branch affairs, but he was an outstanding member of the profession. There was no doubt about his place in its forefront—it fell to very few to establish an international reputation and fewer still had laid the foundation of such a reputation while still engaged in a suburban practice. Amongst others who had died were Alec Juett, who was the father of orthopaedics in Western Australia and also the guide, philosopher and friend of all young orthopaedic surgeons. Others who had died included F. F. Butler, who had been a member of the Branch for fifty-six years, and also V. Eville, L. Martin and K. McGinn.

Dr. Dawkins then referred to the creation of the position of permanent vice-president, which had been effected at the previous annual meeting, the constitution having been altered for the purpose. The position had been established in order to be available as a token of the Branch's esteem and gratitude for outstanding service. The actual alteration in the constitution had been effected on April 8, 1953, and Dr. F. W. Carter had been appointed to the position on June 17, 1953. Details of Dr. Carter's service to the Branch had been given at the previous annual meeting; it therefore sufficed to remind readers that Dr. Carter had been a member of the Association for thirty-five years, a councillor since 1935, and a member of the Federal Council for about fourteen years. Dr. Dawkins announced with regret that Dr. Leigh Cook had found it impossible to continue to act as a Federal councillor for the Branch. Dr. Cook had given outstanding service to the Branch for many years, and had been a member of the Federal Council for five years. It

BRITISH MEDICAL ASSOCIATION (WESTERN AUSTRALIAN BRANCH).

Statement of Assets and Liabilities as at December 31, 1953.

LIABILITIES.				ASSETS.			
	£	s.	d.		£	s.	d.
Subscriptions Paid in Advance			3 3 0	Credit Balance at Bank of New South Wales			181 0 11
Sundry Funds in Credit:				Subscriptions in Arrears			76 13 0
Building	175	5	0	Sundry Funds Overdrawn:			
Entertainment	9	3	0	Car Badge Account	25	16	4
Library Donations	26	8	2	Post-Graduate Grant Account	3	7	11
Cyril Bryan	157	8	10				29 4 3
C.R.U. Grant	3	13	3				
Medical Board Grant	21	9	0	Investments:			
Medico-Legal Golf	17	7	1	Australasian Medical Publishing Company, Limited—			
Nelson Bequest	87	8	3	Debentures "A"—"D"	345	0	0
Post-Graduate Committee	147	12	0	Debentures "E"	1,176	12	6
Publicity			659 8 4				1,520 12 6
Accumulated Reserve Account:				Commonwealth Bonds	1,910	0	0
Balance at January 1, 1953	2,274	12	8	British Medical Agency Company	9	0	0
Add Commonwealth Bonds bought ex Post-Graduate Committee Account	500	0	0				2,439 12 6
Add Excess of Income over Expenditure	1,102	18	6	Fixed Assets:			
			3,877 11 2	Furniture and Fittings	909	0	10
			£4,540 2 6	Less Depreciation	45	9	0
							863 11 10
							£4,540 2 6

BRITISH MEDICAL ASSOCIATION (WESTERN AUSTRALIAN BRANCH).

Income and Expenditure Account for Twelve Months Ended December 31, 1953.

EXPENDITURE		£	s.	d.	£	s.	d.
To Subscriptions to:							
(a) Members' Journals—							
(i) Aust. Med. Pub. Co., Ltd.	£518 0 0						
Less Building Fund, Debentures "E"	£257 15 0						
		260	5	0			
(ii) British Medical Association, London		822	2	7			
(b) Federal Council, Sydney					1,082	7	7
(c) Medical Benevolent Association					530	5	0
(d) Flying Doctor Service					479	17	0
(e) Historical Society of Western Australia					1	1	0
							12 6
					2,094	3	1
„ Costs of Administration:							
Audit Expenses		31	10	0			
B.M.A. House Expenses		18	18	0			
Depreciation		45	9	0			
Duplicating		60	14	2			
General Expenses		36	2	2			
Legal Expenses		25	18	0			
Library Expenses		260	4	5			
Medico-Political Expenses		119	7	10			
Postages and Petty Cash		199	14	5			
Printing		29	5	4			
Rent		259	13	5			
Stationery		78	14	3			
Telephone		76	4	0			
Salaries—							
Secretary	£702 0 0						
Senior Typist	£416 0 0						
Junior Typist	£342 0 0						
Librarian (1)	£261 9 0						
Library Assistant	£382 4 0						
		2,532	13	0			
					3,774	8	0
					5,868	11	1
„ Excess of Income over Expenditure					1,102	18	6
					£6,971	9	7
							£6,971 9 7

was unfortunate that Dr. Cook's resignation made it impossible for him to accept the nomination of the Federal Council as Australian representative at the World Medical Association meeting to be held in Rome later on in 1954. Although Dr. Cook was unable to continue to act as Federal Councillor, he would still remain an active member of the Branch, and his acumen and wide knowledge would continue to be available to the Council.

Dr. Dawkins then referred to the introduction of the *National Health Act*, which he described as the most outstanding event of the year. He referred to the history of events leading up to the introduction of the measure and to the fact that it was the more acceptable to the profession, because it made little change in the existing methods of private practice and fulfilled three main requirements, namely, payment by a fee for service, the free choice of doctor by the patient, and the payment by the patient of a proportion of the fee. At the same time, he admitted that there were some defects. He said that the scheme could fail for reasons beyond the control of the profession. The only way in which the scheme could achieve and retain public support was if the public thought that it was worth while. The medical practitioner was probably able to affect the attitude of mind of the patient. Dr. Dawkins then referred to the undesirability of the raising of fees, and said that the Council of the Branch had thought this to be so important that it had put its views before every member of the Branch by special meetings of Convocation in city, suburbs and country areas. The groups had all agreed with the views of the Council and, as a result, a Fees Advisory Committee had been formed which would function when dispute arose. The committee, which fortunately had so far had very little to do, consisted of Dr. Stanley Craig, Dr. John Day and Dr. Colin Anderson. Dr. Dawkins said that the members of the Branch should support the principle of the scheme while reserving to themselves the right to criticize its details. In time, some aspects of difficulty and incompleteness would be solved, but it was important that the members should try to make the scheme work, because the only alternative was nationalization of the profession. If mem-

bers experienced annoyances and irritation, they should let the Council know of any of their major problems.

Dr. Dawkins then referred to B.M.A. House. He said that for many years it had been agreed that it would be highly desirable for the Branch to have a home of its own, and on October 28, 1948, a general meeting had approved of the principle of the Association owning its own building and had empowered the Council to take the necessary action. In the last five years many properties had been inspected and investigated, but none was suitable. Dr. Dawkins said that the Association owed a great deal to Dr. Stubbe, who had been most enthusiastic about the project and had made most of the investigations and carried out most of the inspections. Finally, the Branch had been offered Number 8 King's Park Road. This was a well-built house, at present being used as a lodging house, and the situation seemed to be satisfactory. There was one fly in the ointment as far as the locality was concerned, and that was that it was in an area which had been designated by the Perth City Council as a residential area. The Council had approached the City Council and asked them to designate West Perth as an area suitable for medical professional chambers, because the Council believed that, sooner or later, doctors would be more or less forced out of St. George's Terrace, or at any rate, have to expand therefrom, as had happened in Melbourne and Adelaide. They believed that West Perth would suit their purpose admirably. As they were hopeful that the City Council would agree to the Branch Council's request, they had decided to proceed with the purchase of the building. The land and building cost £14,500, the furniture and fittings £1250, and stamp fees *et cetera* brought the total outlay to just under £16,000, and all of this money had been advanced by the bank. It was their idea to continue running the house as a lodging house from which they could expect a profit of about £350 to £400 a year. This profit was based on the assumption that they would have to pay 5% interest on the whole of the £16,000, and if ways and means could be found to reduce this annual interest bill of £800, the profit would naturally be so much greater. Against the overdraft they could offset Branch subscriptions;

these amounted to £6000, which were paid in the beginning of the year, and the amount gradually dwindled until the following December, but it could be taken that as an average over the whole year they would have £3000 in the current account. The Medical Benevolent Society had agreed to deposit £1000 in the Building Account also; thus in interest on these moneys they were saving £200. It had been suggested that doctors might lend money on short-term loans and further reduce the amount on which they had to pay interest. It was felt that there were many medical men who had comparatively large sums in their current account waiting until their income tax had to be paid, and it was thought that if this money could be lent to the Association free of interest it would cost the doctor nothing and save the Branch quite a considerable amount. If the profession supported this suggestion, it was thought that it might be possible to reduce the capital outlay by £1000 a year without cost to anyone.

The Branch expected the rent of the present offices would be raised in the near future, and when that occurred they would have to make up their minds whether it would be cheaper to move to King's Park Road, or to continue running as at present; at any rate the Branch had acquired an asset in real estate which would always be valuable. The building might not be their permanent home and they might some day decide to sell the building and move elsewhere, but nevertheless a start had been made towards the obtaining of a permanent home which, Dr. Dawkins thought, everyone agreed was most desirable. It was pointed out also that when the total cost was divided amongst membership of over 500, it amounted to only just over £30 per member. When they moved into the building they would have a suite of offices more befitting their dignity than the present ones at very little cost, as it was felt that the return from the rest of the building would pay for the upkeep of the whole building.

Closely bound up with the policy of purchasing a home of their own was the decision as to a permanent home for the Branch library. The Royal Perth Hospital was willing and anxious to give the Branch the necessary accommodation, and after a good deal of discussion the Council had agreed that the library was best placed either at the hospital or, with the establishment of a medical school, at the University. They had therefore agreed with the Royal Perth Hospital Board that the library would be situated at the hospital until a medical school was established, when the matter might be further discussed. This decision had cleared the air in that they now felt that it was not necessary to make provision for a library in their own home.

Dr. Dawkins said that he was next going to tackle a difficult subject. Although the members all knew that he practised a speciality, yet for the past twelve months he had been President, and it was with the detachment that was the portion of such office that he now spoke.

Since the war there had been a profound change in the practice of medicine, and with it had come some straining of the relationships between the two major groups of the practising profession—the general practitioners and the specialists. Those two groups were both essential and each had an important and definite part to play and should be living together in a happy state of symbiosis. Instead there seemed to be a state of unhappy matrimony and the two groups were snapping and nagging at one another like a tired married couple. This state of affairs might have existed for many years, but if so, the condition seemed to have become aggravated lately. It did not seem to be limited to one State or to one country, and mention of some concern at the state of affairs could be found in the *World Medical Bulletin*. When such a state occurred, it was obvious that there must be many factors, and the Council, hoping to act as a conciliation commissioner, had given the matter a good deal of thought and would shortly issue a circular on the matter in which certain of the complaints of each party would be aired in the hope that it would lead to a better understanding and consequently better relations.

Some of the causes of trouble could be considered under the headings of "The Pirate", "The Bad-Mannered Specialist" and "The Misunderstood". The pirate was the specialist who deliberately stole a patient from a general practitioner. The remedy for this type was obvious. He got no more patients from that general practitioner and it did not take long for the news to spread that piracy was abroad in St. George's Terrace. The bad-mannered specialist was the one who criticized the general practitioner's management of the case to the patient and generally discredited the general practitioner to his own glorification. Like that of the pirate, the bad-mannered specialist's circle of general practitioner supporters must be ever diminishing. The misunderstood,

Dr. Dawkins believed, were probably fairly numerous. In the long-departed leisured days when it was possible for a general practitioner and specialist to see the patient together, chance of misunderstanding was quite small, but in the present busy, hurried days, the chances of misunderstanding were great. One common factor was an ambiguous note that accompanied the patient. Many doctors said quite clearly that they were sending the patient for opinion or treatment or investigation or whatever they wanted, but there were others who wrote and said: "I shall be glad of your help in this case." This led to some doubt in the specialist's mind as to just what was required. It was sometimes not possible to contact the doctor on the telephone before the patient left and a decision had been made as to the course of action to be taken; if he made a wrong guess, he was in trouble. Sometimes the specialist gave the patient a note to present to the general practitioner and the patient did not do so. The general practitioner then believed the specialist was a "pirate".

There was another way in which misunderstanding could arise, and that was by paying too much attention to the patient's description of what the other man had said. It was so elementary that it should hardly require mention because they all realized how easily the patient got the wrong end of the stick, but nevertheless, Dr. Dawkins thought that sometimes they allowed the patient's description of an interview to affect adversely their opinion of the other man. Another difficulty arose in cases of what he called "dual control". The patient was sent up for advice as to treatment which was given and sometimes the treatment was not effective, yet it was persisted in for a lengthy period because it was the treatment that was advised by the specialist. The general practitioner kept muttering to himself about so-and-so having given bad advice and the specialist muttered about the general practitioner for having persisted in the treatment for so long when it was obvious that it was not being effective.

A source of some irritation to the specialist was an apparent willingness to send people for further treatment to a public hospital instead of direct to the specialist. In some cases this was probably done because it was easier to give a note to go to hospital than to arrange for a consultation. An instance of this had occurred in a workers' compensation accident at a time when the practitioner was particularly busy and had found it easy to say "take him to the 'Perth'". Here it was not a question of cost to the individual, and the member of the honorary staff who treated the patient could be excused for feeling that it would have been much better if he had been able to take the patient over as a private patient and receive the usual fees. In other instances the patients were sent to the public hospital probably in an endeavour to save the patient expense. This was a relic of the days when public hospitals were free, and it should be reviewed in the light of the present state of affairs. There were a great number of people who were now insured for medical benefits and a large number of these were still being referred to the public hospitals. It should be remembered that at the Royal Perth Hospital a patient usually made two visits before he saw the specialist. Dr. Dawkins was sure that most people would sooner spend a few shillings between the cost of the fee and the rebate and attend the specialist's rooms at an appointed time and be then seen. Some such patients were sent with a view to having an operation and there were two factors that had to be remembered in the interests of the patient in this regard. The first was that there was very little interval surgery being done at the Royal Perth Hospital, and if the condition was an orthopaedic one, the chance of having an interval operation performed within a reasonable period was almost negligible. Even if the patient did get into hospital, the cost if the patient was insured was just as much as it would be in a private hospital. The cheapest rate which anyone paid at the Royal Perth Hospital was £12 5s. per week, whereas it was often possible to obtain beds for eight or nine guineas in private hospitals. The difference between the hospital bills would often make the difference between the rebate and the surgeon's fee, especially if the specialist was informed that the patient was of the intermediate type.

The causes of irritation which had been mentioned were by no means complete, and all those present would be able to think of factors that had not been mentioned. Dr. Dawkins wished to go further and to say that he believed that there was probably a deeper underlying cause which was associated with the change of medical practice that had occurred since the war, and it was associated with the introduction of antibiotics and certain social legislation. Nowadays, the general practitioner with the aid of antibiotics was curing many of the conditions which had

previously been seen or treated by specialists. Probably too much penicillin was being used and it was possibly being used somewhat indiscriminately, but nevertheless it and its allies were curing a lot of ailments. To give this treatment effectively, however, it was often necessary for the doctor to see his patients one or more times a day, and he was consequently very busy. The Pensioner Medical Service had also added to his work and his income, and there was no doubt that today the general practitioner was a very busy, but very prosperous, man. At the same time there was a lessened demand for specialists, especially in some branches. Anything surgery had lost from empyemas and such like was more than made up by the new fields that had been developed and the greater scope brought about by safer and better anaesthesia. The ear, nose and throat man seldom saw an "antrum" or a "mastoid", and although the attack on deafness might compensate to some extent, yet the number of patients seen must have fallen off considerably. The eye specialists had probably been little affected and the orthopaedists still had plenty of trauma and degenerative conditions to deal with, but the physician seldom saw a patient with pneumonia or meningitis and such like conditions. The whole point of Dr. Dawkins's argument was that the demand in the community was for general practitioners, and that under the existing arrangements there was probably an over-supply of specialists in some branches. This question of supply and demand would solve itself in due course. It was something that could not be arranged by legislation or regulation, but the transition period certainly had its difficulties.

That led on to the consideration of the bigger problem of the training of the specialists of the future. There had to be an adequate supply of specialists because, although they might be called upon only relatively infrequently, yet when they were needed they were needed badly. The academically inclined and ambitious had in the past filled the specialist vacancies and the reward of success in a speciality was considerable. An incentive was the common, but sometimes erroneous, belief that once one had specialized one earned bigger money with less effort.

In the old days one saved or borrowed enough money to do a post-graduate course, then obtained a junior position on the honorary staff. One had very little to do in private practice, but there was plenty to do at the hospital and a considerable experience was obtained by seeing a large number of patients. One was encouraged because the star on the distant horizon seemed bright. In due course the tide turned and gradually one saw more and more patients in private practice and began to earn a moderate and sometimes a large income. But nowadays the star on the horizon was much less bright and the monetary attractions of general practice were greater. In general practice, within a year or two one could be assured of a very comfortable income, there was no lag period and the income finally earned was as great or greater. Thus the incentive to specialize was becoming less, and even so, where was the material on which to get one's experience coming from?

The Federal Parliament scheme aimed at doing away with public hospitals as they were now known, and when the bulk of the community was insured everyone would be someone's private patient. Out-patient clinics would diminish and the improvident and uninsurable would not supply sufficient material for the young man to become proficient. The teaching of students was not so difficult because it could be made a condition of admission to public hospitals that patients could be used for teaching purposes, but the large number of cases for the young specialist remained a problem. Dr. Dawkins was not offering a solution because it would probably evolve as time went on, but it was an aspect that needed watching.

Finally, Dr. Dawkins said that he would conclude on a note of friendly advice and warning. One moved about and heard things said and surely it was the duty of the President to offer a warning if it seemed necessary. Dr. Dawkins believed that in the eyes of the public the prestige of the profession was falling. He believed that many people felt that doctors were slipping away from the high ideals of service which actuated their fathers. Many people believed that doctors were a hard "money-grabbing" lot, and they quoted difficulty in getting in touch with their own or any other doctor at night or at week-ends. Insurance companies and politicians claimed that the doctor's only real interest was his fee. It might be that having to deal so much with schedules had entered the doctor's soul. There was no reason why a practice should not be run as a business; but if it was, doctors should not expect to be considered as anything other than businessmen. Its forebears had established a great name for the profession, and doctors had

received special treatment from all branches of the community because of it. Now, Dr. Dawkins thought, there was a danger of their losing a high estate for a mess of pottage.

SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on April 29, 1954, at the Robert H. Todd Assembly Hall, British Medical Association House, 135 Macquarie Street, Sydney. Dr. T. Y. NELSON, the President, in the chair.

Diabetes in Pregnancy.

Dr. F. H. HALES WILSON read a paper entitled "Pregnancy with Diabetes—The Physician's Viewpoint" (see page 87).

Dr. R. C. GILL read a paper entitled "Diabetes in Pregnancy—The Obstetrician's Viewpoint" (see page 88).

Dr. D. R. SHEUMACK, in opening the discussion, said that he would speak first of the problem as it had occurred at the Royal Hospital for Women, Paddington. Since 1935 approximately 56,500 women had been confined in the public section of the hospital; the association of diabetes and pregnancy had been noted in only 69 cases. One maternal death had occurred. Dr. Sheumack said that he felt sure that such a death could now be prevented; it had been due to streptococcal septicæmia at a time when no chemotherapeutic barrage could be launched against the offending organism. The over-all fetal survival rate was 69.5%—a figure much lower than that in most of the recently published series.

Dr. Sheumack then briefly surveyed the incidence of some of the commoner obstetric complications encountered in the series. Preeclamptic toxæmia had occurred in 44.9% of all cases; it was noteworthy that since the last series of cases that he had published in the journal in 1949, there had been no reduction in the incidence of that complication, nor for that matter in the incidence of hydramnios. Contrary to expectation, few of the babies had been excessively heavy; only 10.1% weighed over 10 pounds. In point of fact the majority weighed about seven pounds. It was his impression that fetal gigantism was more common in the pre-diabetic than in the diabetic. The incidence of fetal abnormalities was also low, and in only one case out of a total of three was the baby sufficiently malformed as to be incapable of extrauterine life. Up to 1948 the over-all fetal survival rate was 66%; since that time it had been 75%, a figure which compared more favourably with other series. Caesarean section as a method of delivery had gained in popularity; in all only seven sections in a total of 18 cases were performed prior to 1949.

Dr. Sheumack next referred to questions about which there was still controversy. The first was, what could be expected of the outcome of a diabetic pregnancy, the patient being under competent obstetrical and medical care and receiving insulin therapy alone? Or conversely, what benefits resulted from substitution hormone therapy? Dr. Sheumack thought that at the present time they were in the trough of the original wave of enthusiasm for sex hormone substitutional therapy. It appeared more than probable that results obtained in series of cases in which sex hormone therapy had not been used would be equally as good as those obtained in series of cases in which hormone therapy was used. In England at the present time an attempt was being made to settle the question. In the meantime substitutional therapy with oestrogens and progesterone might be given, for apparently no harm resulted to the pregnant patient even from massive dosage of those substances.

The second controversial problem referred to by Dr. Sheumack had to do with the choosing of the time for delivery, when the diabetic patient had been carried, with or without hormone therapy, to a stage at which viability of the fetus was reasonably assured. He said that few obstetricians would care to carry the pregnant diabetic past the thirty-eighth week; in actual fact, in most cases pregnancy should be terminated at about the thirty-seventh week. In many instances the presence of some complication such as preeclampsia or hydramnios would necessitate termination of the pregnancy at an earlier period.

The third question was that of the methods that should be used for termination of the pregnancy, once termination had been decided upon. Dr. Sheumack said that for *primiparae*, and for severely diabetic *multiparae*, the performance of a lower segment Caesarean section would be the method of choice. It was worthless to state that Caesarean section should be resorted to only when fetal distress was noted

after artificial rupture of the membranes. Everyone who had dealt with such patients should know that the fetal heart sounds disappeared without warning. An ideal anaesthetic combination was "Pentothal", "Tubarine" and cyclopropane. Local anaesthesia was theoretically perfect, but practically not suited to many patients or to some surgeons. Spinal anaesthesia was mentioned only to be wholeheartedly condemned.

The fourth problem was the type of special care that had to be given to the newborn baby to ensure a minimal chance of neonatal death. Dr. Sheumack said that immediately delivery was completed, the baby's air passages should be sucked free of liquor and mucus. It was an established fact that the bronchial tree of those infants contained a superabundance of liquor. A catheter should also be passed into the stomach and the contents aspirated. It was thought that regurgitation from an excessively distended stomach might in many instances explain the cyanotic attacks to which the babies were prone. Oxygen should be given from the outset, and it was advisable to restrict the fluid intake for the first three or four days.

In conclusion, Dr. Sheumack said that it seemed advisable that all pregnant diabetics should be managed by a single team in each hospital. Obviously little improvement could be expected whilst such small numbers of patients were treated by a number of people whose ideas differed so greatly.

DR. DAVID MCGRATH said that he wished to present the figures for the period 1944 to 1953 inclusive from the Women's Hospital, Crown Street. In that time there were 66 diabetic patients with 72 pregnancies, an incidence of roughly one in 600. Toxemia had occurred in 61% of cases, hydramnios in 15%, fetal abnormalities in 5.6%, stillbirths in 15.2%, neonatal deaths in 4.2% (the total fetal wastage being 19.4%), and maternal deaths in 1.3%. Caesarean sections were performed in 8.3% of cases, and lactation was established in 55%. Dr. McGrath said that the toxemia rate was higher than at other hospitals, but that might well depend upon the standards adopted for diagnosis of toxemia at different hospitals. The incidence of fetal abnormalities was low, and the fact that one child subsequently died at the Royal Alexandra Hospital for Children showed that perhaps some abnormalities did not appear until after the children had left the supervision of the obstetric hospital. A year's follow-up or more on all babies of diabetic mothers seemed to be indicated. Of the 11 stillbirths, seven had occurred *in utero* before labour commenced, but four had occurred *in utero* during labour. There were three neonatal deaths, which brought the fetal wastage in all cases to 19.4%. The one maternal death had occurred in 1944 from pulmonary embolism on the thirteenth day of the puerperium. Dr. McGrath said that the Caesarean section rate was low. At the Women's Hospital they had always been conservative in the matter of Caesarean section. However, he was sure that they could save more babies of diabetic mothers if they used Caesarean section more often, particularly in the case in which an artificial rupture of the membranes was performed, and the woman either did not come into labour or had an inert type of labour. In those cases there was a chance of fetal death *in utero*.

Referring to the time of induction of labour, Dr. McGrath said that the setting of an arbitrary time was difficult. One had to be prepared to induce labour at any time after about the thirty-second week. The following circumstances would sway one in the direction of induction: (i) difficulty in controlling diabetes mellitus; (ii) very rapid growth of the fetus; (iii) the presence of toxemia; (iv) the presence of hydramnios. Toxemia and hydramnios were of serious significance. He thought that one should err on the side of inducing labour too early rather than too late in diabetes. An X-ray examination of the fetus was most helpful for revealing fetal oedema and gross skeletal abnormalities. One might often be saved the tragedy of performing a Caesarean section to deliver a deformed fetus by having an X-ray examination made. One should watch for other obstetric abnormalities which might sway one in the direction of Caesarean section.

Dr. McGrath said, in conclusion, that he would like to see a pooling of all the figures for diabetes and pregnancy in Sydney, so that they might obtain figures which were statistically significant. One hospital should be delegated to try hormone treatment in all its cases, so that the worth of the treatment might be assessed at the end of five years.

DR. KEMPSON MADDOX said that he thought he reflected the views of Professor B. T. Mayes and the senior obstetricians at the Royal Prince Alfred Hospital. They had met five years earlier, and it had then been decided that the medical care of pregnant diabetics should be in the hands of a

representative of the diabetic clinic, and that they should be "channelled" to the beds of Professor Mayes. That procedure had in general been followed. The clinic was quite small—sometimes it had no patients at all. The medical side had been represented by Dr. Keith Harrison. It was far too early yet to say whether the plan was better than the distribution of work over a larger number of people; but at least it had the merit of agreement on general principles and consultation about the problems in an individual pregnancy. Dr. Helen Farrar had done excellent work, first as registrar, next by the interest she had retained in the clinic, and last by taking stock of the results obtained so far. Dr. Gill had given the over-all figures; the numbers were not large enough to permit of dogmatism, nor to allow a comparison to be made between the results obtained before the plan came into operation and those obtained since.

Dr. Maddox went on to say that in 1946 he had visited Priscilla White's clinic; she had then just completed the first series, and the results showed a great reduction in fetal wastage. The figures were entirely authentic—there was no manipulation. Whether the use of hormones had done as much as Priscilla White claimed was still open to doubt. However, she had a highly educated and intelligent diabetic community to deal with, and the husbands had plenty of money to buy hormones. The figures were promptly challenged by the Johns Hopkins group and the Chicago workers, and for eight years they had been attempting to upset them, or to show that they really gave a false impression of the true situation. Dr. Maddox said that so far as he was able to discover, White's results had not been refuted. However, some doubt had been cast on them by the results of the Medical Research Council's investigation. At the Royal Prince Alfred Hospital they had decided to treat alternate patients with hormones, and to try to do in a minor fashion what had been done in England. The dosage of hormones had greatly increased since White first gave her figures. Perhaps in another five years the results would be statistically significant. Dr. Maddox said that he agreed with most of what Dr. Wilson had said; but there was one point of disagreement. Dr. Wilson had said that he considered that a mildly diabetic pregnant woman could be expected to proceed to term and to have a live child without great danger. Dr. Maddox said that in his experience he had been disappointed to find that patients whom he considered mildly diabetic had had intrauterine death of the fetus, unassociated with signs of toxemia. The occurrence was difficult to forecast. As far as carbohydrate was concerned, it had to be realized that the patient would lose a certain amount of glucose by the kidneys; one had to make sure that she received a net intake of carbohydrate that would take care of any renal loss. As to the rest of the management, in his experience the advent of hydramnios was fairly serious and often resulted in premature labour or intrauterine death of the fetus. Dr. Maddox said that he had not had the same success as Dr. Wilson with regard to lactation in his patients; in fact the patients were not over-persuaded to persist with lactation. There had been two maternal deaths at the Royal Prince Alfred Hospital; both patients were private patients, not under the control of the diabetic clinic. The first was a woman, aged twenty-five years, with a fairly short history of diabetes. She was in good health and should have given no trouble. Caesarean section was performed at the selected time, and when he was called to examine her she was in a state of severe restlessness and distress. She had been thought to have paroxysmal tachycardia, and had been given digitalis intravenously. What had puzzled them was her rapid deterioration after only three or four hours of tachycardia. They ultimately realized that she was in a state of severe shock, for which she was treated actively, but she died. Next day, at the post-mortem examination, bilateral adrenal haemorrhages were found. The second patient who died should have undergone a therapeutic abortion early in pregnancy; she was in an advanced state of the Kimmelstiel-Wilson syndrome, and died in uremia after two or three days of labour. In some cases the bad outcome was quite unpreventable. The irreducible fetal wastage was probably fairly close to 20%, and the maternal mortality should be down to that of non-diabetic mothers. Dr. Maddox said that he was sure that the general care of diabetic patients for the year or two preceding pregnancy was most important. If control was bad and the patient was not cooperative, then in pregnancy it might be found that satisfactory control of her diabetes was sometimes achieved too late. Such patients ran a considerably greater risk of losing their child than others whose control had been satisfactory. The paediatrician had to be regarded as a very important member of the team. Dr. Maddox referred to the frequent development of a hyaline membrane over the upper air passages of babies of diabetic mothers, which could be dispelled by the placing

of the babies in a "Humidicrib", or by making sure that the air they breathed was kept very moist. Another point was the need to avoid heavy sedation of the mother prior to operation; it depressed the infant's respiratory centre, as many of the infants had atelectasis and respiratory difficulties. Dr. Maddox said that he disagreed very strongly that acidosis was a sign for swift intervention; the patients should be brought back into a normal state before surgical intervention was attempted. Finally Dr. Maddox said that only by pooling the ideas of all concerned, as they were doing, and by very thorough care of the patient beforehand, would they achieve the best figures.

Dr. S. E. L. STENING said that as a paediatrician he was grateful to the speakers for emphasizing the various facets and instructions in the treatment of the pregnant diabetic, because he was certain that morbidity among the babies would be much lessened if they were applied. Since January, 1950, he had seen 24 babies of diabetic mothers; all were sick. They were all to some extent oedematous, and all had the appearance of premature babies. Two had died, one of cerebral hemorrhage (which was one of the common causes of death); the other at the post-mortem examination was found to have a fatty liver. Dr. Stening said that the treatment of those infants had been well covered, and he had little to add. However, he wished to point out that in spite of what the books said, the blood sugar level of the babies did fall very low; in several series of cases there were figures as low as 10 milligrammes per 100 millilitres. Actual hypoglycemia was not seen; but if the babies became restless for want of fluid, which was often withheld for good reasons, it was reasonable to give them a strong solution of glucose. There was a chance that if the blood sugar content was increased, for example, from 30 to 50 milligrammes per 100 millilitres, the infant's vitality would be increased. Dr. Stening advised the administration of a 25% to 40% solution of glucose if fluid could be given. Dr. Stening said that only one or two of the infants had a birth weight over ten pounds. The better the ante-natal and natal care of the mother, the more chance the infant had of surviving.

Dr. T. Y. NELSON said that there was a very high incidence of congenital abnormalities amongst the infants. He asked why that group should be more susceptible than any other.

Dr. KEITH HARRISON said that his association with the combined clinic at the Royal Prince Alfred Hospital had been interesting and instructive. It had impressed on him how important it was to have access to hospital beds for toxemic patients. The main problem in managing pregnancy in a diabetic patient was the detecting of toxemia at a very early stage (40% of the patients had toxemia) and arranging their prompt admission to hospital; the hypertension then usually subsided. The management of the diabetes presented no real problems; if it became severe it required the admission of the patient to hospital for control. However, that was rare. The patients did have to be admitted to hospital for control of toxemia, and while they were there the opportunity was taken to get as good control of the diabetes as possible. Dr. Harrison referred to the question of why the babies were big, and why they presented such peculiar changes at autopsy as extramedullary erythropoiesis, like babies that had died of erythroblastosis or Rh incompatibility. No satisfactory explanation was forthcoming. The growth factor of the pituitary had been blamed; it was also diabetogenic, and in that way linked up rather well. However, women suffering from acromegaly, unless they were also diabetic, did not have very big babies.

Dr. R. B. C. STEVENSON said that he wished to stress two points. The first was the statement in Dr. Wilson's paper that pregnant diabetic patients were given a diet containing ample protein and 1400 to 1800 Calories a day. Dr. Stevenson wished to emphasize that the patients were given sufficient Calories to control their weight, while obese patients were reduced in weight. If those principles were observed, it should be possible to reduce the incidence of a superadded severe preeclampsia and so lessen the incidence of the commonest complication occurring in diabetic pregnancies. Dr. Stevenson said that he had found the physicians most cooperative. The second point that he wished to stress was that Caesarean section *per se* played no part in the treatment of diabetic pregnancy. He admitted that many patients ultimately had Caesarean sections performed, but the decision as to whether the delivery should be a vaginal one or by Caesarean section should be made on obstetrical grounds. Dr. Gill had said that one reason for the need for Caesarean section was that it was very hard to induce labour some weeks before full term. Dr. Stevenson said that if this was so, the same reasoning should be applied to induction of labour for preeclampsia. If the baby was big, if the head was free and floating, or if the cervix was unprepared

or "unripe", it would be foolish to perform surgical induction of labour rather than Caesarean section; but if the head was in the pelvis, the cervix was prepared and there was no disproportion, then high rupture of the membranes should be performed. If signs of fetal distress occurred at any stage during labour, or if the labour was prolonged, the obstetrician must be prepared to intervene with Caesarean section, as he must also be if labour did not start within seventy-two hours of rupturing the membranes. Many patients who developed diabetes after the birth of their first child had their second or third babies easily and quickly. In such cases there was no indication to perform a Caesarean section, rather than allow vaginal delivery following induction of labour. Dr. Stevenson said that the views he had expressed about Caesarean section in diabetic pregnancy were supported by the high fetal survival rate and the low Caesarean section rate in the figures from the Women's Hospital, Crown Street.

Dr. J. F. MCINERNEY asked whether any of those present could give figures for the ultimate survival rates of babies born alive of diabetic mothers, and discharged from hospital. He wondered what the twelve months' survival rates would be. Professor Dunlop, of Edinburgh, had made a statement to the effect that many died in the first twelve months of life, unknown to the obstetric hospitals.

Dr. J. M. FARRAR said that their experience at the King George V Hospital for Mothers and Babies had been rather different from that of Dr. Stevenson. There they regarded diabetics as having prematurely senile placentae. Walker, of Aberdeen, had shown that in diabetics at thirty-six weeks there might be difficulty in getting oxygen transferred to the foetus. At the King George V Hospital they looked on the patients as having all the dangers of fetal death without the accompanying severe toxemia. Often after rupture of the membranes in a case in which no danger was anticipated, the fetal heart sounds would suddenly disappear.

Dr. F. H. READ said that at Sydney Hospital they had no obstetric beds, but during the last twelve months they had had three pregnant patients at the diabetic clinic, and in all pregnancy had been brought to a successful conclusion. The patients attended the clinic up till about the thirty-sixth week, and then they were admitted either to the Women's Hospital, Crown Street, or to the Royal North Shore Hospital of Sydney. All the babies lived; one was delivered by Caesarean section at thirty-eight weeks, one at thirty-eight weeks, and one at term *per vias naturales*. Dr. Read said that the point made by Dr. Wilson and Dr. Harrison needed stressing a little more. Dr. Wilson had said that the patients should be examined every week or every fortnight, the reason being the need to control the diabetes. Dr. Read said that he carried out weekly or fortnightly estimates of random blood sugar levels. The subject was very important. Changes in the renal threshold meant that ordinary urinary examination was not sufficient for control. Another point was the extraordinary frequency with which a mother who had one small baby weighing seven pounds followed by another weighing 10 or 11 pounds became diabetic later on in life. Dr. Read wondered what the explanation was.

Dr. JAMES ISBISTER spoke on the question of the indications for termination of pregnancy in the early months in diabetics. Two conditions interested him most, retinopathy and the Kimmelstiel-Wilson syndrome. He had never seen retinopathy severe enough to warrant termination of pregnancy. Dr. Isbister asked Dr. Maddox to state the blood pressure of the patient with nephropathy whom he had mentioned, because he had said that pregnancy should have been terminated early. Another point raised by Dr. Isbister was the question of the diabetic who had had an unsuccessful pregnancy with death of the foetus; when she asked what were the prospects for a future successful pregnancy, what answer should she be given?

Dr. Maddox, in reply to Dr. Isbister's question about the blood pressure of the patient with Kimmelstiel-Wilson syndrome, said that he had not the figures with him, but she had nephropathy and retinopathy, and the post-mortem examination revealed pulmonary oedema.

Dr. G. E. CUMMINS raised the question of the pregnant diabetic whose foetus died *in utero*, and who later became pregnant again. He asked whether the subsequent pregnancy should be terminated earlier than the previous one, because of premature senility of the placenta.

Dr. Nelson, from the chair, thanked those who had contributed to the discussion, and said that the subject had been covered very fully. There appeared to be general agreement that the condition of the pregnant diabetic woman could be controlled. The administrative problem was whether

a special clinic should be set up, or whether the hospitals should pool their resources. It was an interesting question why the babies of diabetic mothers had the hyaline membrane that had been referred to.

Dr. Wilson, in reply, referred first to Dr. Read's remarks about the advisability of carrying out frequent blood sugar estimations. He said that random blood sugar estimations were very helpful in the latter part of pregnancy. What they usually did was to increase the insulin dosage as indicated by the results of urine tests carried out by the patient four times a day. If it was found that the dosage had to be increased more and more and there was no sign of hypoglycaemia, then presumably the blood sugar level was not low. But if the patient began to show signs of hypoglycaemia in the presence of glycosuria, then a blood sugar estimation should be made, and probably the dosage of insulin would have to be reduced slightly. In reply to Dr. Isbister's question about the indications for the termination of pregnancy, Dr. Wilson said that the presence of retinopathy usually indicated widespread damage to the vascular system, and there was a possibility that retinopathy might increase during pregnancy. Priscilla White considered that if that happened and the pregnancy was immediately terminated, the retinopathy would regress. Such a patient ran some risk of losing her vision. The presence of retinopathy was therefore an indication for extreme care and might be an indication for the termination of pregnancy. Each case had to be judged according to the circumstances. In the making of a decision one had to take all the facts into account. If the woman was very anxious to have a child, the risk should be explained to her. Referring to nephropathy as an indication for termination of pregnancy, Dr. Wilson said that if hypertension was present the outlook was much less favourable. In any person with renal impairment there was some hazard and a greater likelihood of foetal death, and such a person needed care and watching, especially in the presence of renal infection. The patient should be asked to agree to the termination of pregnancy if the renal condition became worse. If hypertension was present also, it was not worth while going on with the pregnancy. Dr. Isbister's second question concerned the advice that should be given about a second pregnancy when a previous one had ended in foetal disaster. Dr. Wilson said that the advice would depend on what children the patient already had, on her age, and on the association of factors that caused the first foetal death and whether they were likely to recur.

Dr. Gill, in reply, said that he had no idea why congenital abnormalities occurred; he presumed that the cause went back to genes. Dr. McInerney had asked about the long-term prognosis for the infants. Dr. Gill said that he knew of no figures in Australia or elsewhere covering the follow-up of such babies. They would be followed up in a large clinic like that of Priscilla White; in a big unit associated with a diabetic clinic it would be done automatically, whether the figures were recorded and published or not. Dr. Cummins had asked about the earlier termination of a second pregnancy when the first had terminated in foetal death *in utero*. Dr. Gill said that it would be necessary to know what were the circumstances of the foetal death in the first case. He would be wary about trying to terminate pregnancy too early. He knew of a successful Caesarean section performed as early as thirty-two weeks. He thought that the best procedure would probably be to redouble one's efforts at meticulous medical and obstetrical care. In reply to Dr. Stevenson, Dr. Gill said that he did not think every diabetic mother should have a Caesarean section at thirty-seven weeks, but many should. Most of them went into pregnancy knowing that they were taking a risk. They were a very courageous and gallant group of patients, and everything should be done to see that they had live babies somehow. A scar on the abdomen was not very important to them; they were not going to have large families, so that the importance of Caesarean section in limiting the size of a family disappeared. The figures from the Women's Hospital, Crown Street, were very good; the survival rate was 80%, which was in world class, but four babies (29%) died during labour. Dr. Gill thought that if those babies had been delivered by Caesarean section, they might at least have been delivered alive. If they had lived, the survival rate at the Women's Hospital would have been 86%, second only in the world to that obtained by Priscilla White.

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

DEATH FROM INJURIES COMPLICATED BY SCURVY.¹

[From White's "Journal of a Voyage to New South Wales".]

8 January, 1788.

I WENT on board the *Fishburne* to see the boatwain who, on the first night of the New Year, having probably drunk more grog than he ought, and the ship labouring much, had fallen from the top-sail-yard; by which he bruised himself in a dreadful manner. The man being highly scorbutic, the parts soon mortified, and he died about half an hour after I got on board. The master of the ship showed evident signs of great concern for this invaluable man as he termed him. He declared to me that sooner than venture again on so long a voyage without a surgeon, he would put to sea with less than half his complement of men; for he was strangely of the opinion that if the poor fellow had received immediate assistance he would have recovered. I should have seen him sooner, but was prevented by my own indifferent state of health. How owners of ships can think of sending them through such a variety of climates and a voyage of so great a length without a surgeon is to me a matter of surprise. The *Lady Penrhyn*, owned by Alderman Curtis, was the only merchant ship in our fleet that had a surgeon. What the others will do on their return Heaven only knows; but this I well know that they would never have reached thus far but for the succour given them by myself and my assistants.

Public Health.

RECOMMENDED DIETARY ALLOWANCES FOR AUSTRALIA.

THE following report on recommended dietary allowances for use in Australia was prepared by the Nutrition Committee of the National Health and Medical Research Council and endorsed by the Council at its meeting on May 19 and 20, 1954. The report is the work of Miss Winifred Wilson.

RECOMMENDED DIETARY ALLOWANCES FOR USE IN AUSTRALIA.

Up to the present time in Australia the recommendations of the Technical Commission of the League of Nations, the National Research Council of America, and the Nutrition Committee of the British Medical Association, or adaptations of these, have been variously used as guides in planning dietaries and as criteria for the assessment of diets or items of diet. There has been a demand for recommended dietary allowances designed for use in Australia which recognize the influence of environment on nutritional requirements and of local food supplies on the development of a typical diet pattern.

The Nutrition Committee of the National Health and Medical Research Council has therefore prepared the following table of dietary allowances, which are recommended as a basis for the planning of diets in Australia. These allowances represent average values for the groups specified, and they may require adjustment for individuals within a group, or for groups differing in some respects from those specified. For persons who are more or less active than the reference or who live in parts of Australia with a different climatic environment, adjustments may be made by applying the formulae given in the report of the Food and Agriculture Organization (1950). For many persons in these categories modifications of this kind will be an unnecessary refinement, since the average values for a group are presumed to cover a range of individuals with a wide deviation from the average.

¹ From the original in the Mitchell Library, Sydney.

TABLE I.
Recommended Daily Dietary Allowances, 1954.¹

Subjects.	Age. (Years.)	Calories.	Protein. (Grammes.)	Calcium. (Grammes.)	Vitamin A. (Inter- national Units.)	Thiamine. (Milli- grammes.)	Riboflavin. (Milli- grammes.)	Niacin. (Milli- grammes.)	Ascorbic Acid. (Milli- grammes.)	Vitamin D. (Inter- national Units.)
Men	25	3000	65	0.8	5000	1.5	1.6	15	30	—
	35	2900	65	0.8	5000	1.5	1.6	15	30	—
	45	2800	65	0.8	5000	1.4	1.6	14	30	—
	65	2500	65	0.8	5000	1.3	1.6	13	30	—
Women	25	2200	55	0.8	5000	1.1	1.4	11	30	—
	35	2100	55	0.8	5000	1.1	1.4	11	30	—
	45	2000	55	0.8	5000	1.0	1.4	10	30	—
	65	1800	55	0.8	5000	0.9	1.4	9	30	—
Pregnant (third trimester)	—	Add 400	80	1.5	6000	1.3	1.8	13	80	400
Lactating (850 millilitres daily)	—	Add 1000	100	2.0	8000	1.6	2.0	16	100	400
Infants	Under 1	60-45 per pound	1.6 per pound	0.6-1.0	1500	0.5	0.9	5	30	400
Children	1 to 4	1300	40	1.0	3000	0.7	1.0	7	30	400
	5 to 8	1700	55	1.0	3000	0.9	1.3	9	30	400
	9 to 12	2300	70	1.2	3000	1.2	1.7	12	30	400
Boys	13 to 15	3000	85	1.4	5000	1.5	1.8	15	50	400
	16 to 19	3600	100	1.4	5000	1.8	1.8	18	50	400
Girls	13 to 15	2500	80	1.4	5000	1.3	1.8	13	50	400
	16 to 19	2300	75	1.4	5000	1.2	1.8	12	50	400

¹ These allowances are recommended for the planning of practical diets for healthy persons, normally vigorous, and living in Australia in a warm temperate climate. The recommendations for infants refer to diets consisting mainly of cow's milk; the values do not necessarily apply to breast-fed infants.

Notes on Recommended Allowances.

Diets containing a variety of foods commonly eaten in Australia will provide the recommended allowances of the nutrients listed, and should also provide adequate amounts of other nutrients whose nature and functions are less well known.

The allowances are based on the theoretical requirements of the reference adults defined hereunder, and as individuals differ from the reference with respect to age, body size, degree of activity, climatic environment and other factors, so their requirements will differ from those of the reference (F.A.O., 1950). The reference children and adolescents may be considered as the younger counterparts of the reference man and woman; they live in the same climatic environment and they are very active.

Deviations from the recommended allowances of the order of 10% to 15% are not likely to have a significant effect on the nutritional status of different people in the same age and sex group. It is emphasized that although the allowances may be used as an arbitrary standard for the evaluation of diets, the failure of an individual diet to reach the levels of the allowances does not in itself justify the conclusion that the diet is inadequate.

Reference Man.

The reference man¹ is twenty-five years of age. He is healthy, that is, he is free from disease and exhibits a "normal" degree of physical fitness. He weighs 65 kilograms (143 pounds) and lives in the warm temperate zone at a mean external annual temperature of 18° C. (64° F.).² He consumes an adequate well-balanced diet; he neither gains nor loses weight. His activity is exemplified by the following average weekly schedule: on each working day, eight hours of physical work of the type referred to below, four hours of "sedentary" activity (for example, reading, writing), a walk of five to ten kilometres (three to six miles) on the level, and at least two hours out of doors; on each non-working day, the active pursuit of exercise and sport not of the extremely strenuous variety. The degree of activity involved in occupation in light industry, driving a truck, dairy farming or market gardening, or general laboratory work would represent approximately his working activity.

Reference Woman.

The reference woman¹ is a similarly healthy woman, aged twenty-five years, weighing 55 kilograms (121 pounds). She lives in the same environment as the reference man and is

engaged in general household duties, including the care of small children, or in light industrial work. Non-working activities include a daily walk of from five to ten kilometres (three to six miles) and two hours spent out of doors. At times she engages in activities such as gardening and non-strenuous sports.

Calories.

The Calorie allowances apply to the reference man and woman already defined. A high percentage of urban dwellers would have a lower degree of activity and therefore lower calorie requirements than those given for the reference man. For such people, engaged in light to moderate activity, it is recommended that the allowances be reduced by 250 Calories. Calorie allowances are also reduced with increasing age because of the lessening of activity that usually accompanies aging; older persons who do not reduce their activity to the usual level will require to reduce their Calorie intake only in proportion to their reduction of activity.

Protein.

Protein allowances are related to body weight, those for adults being computed as one gramme per day for each kilogram of body weight. For children the allowances are much greater relative to size, being 1.5 grammes to 3.0 grammes daily per kilogram of body weight for children and young adolescents, and 3.5 grammes for infants.

It is of no consequence whether the protein allowance is obtained from animal or vegetable foods, provided that an adequate mixture of amino-acids is supplied. In the usual Australian diet pattern, however, a proportion of animal foods should be included to provide some of the other essential nutrients.

Iron.

Although it is recognized that iron is an essential element for man, no specific amounts are given as recommended allowances, because in the opinion of the committee the information available regarding iron metabolism is not sufficient to justify the adoption of any precise values. Normal healthy persons should obtain an adequate intake of iron from a mixed diet containing a variety of foods; those suffering from anaemia related to an iron deficiency will require supplements of iron in medicinal form.

Vitamin A.

The recommended allowances for all groups other than infants are based on the assumption that the vitamin A value is derived from a mixture of preformed vitamin A and its precursor carotene in the proportion of one-third vitamin A and two-thirds carotene. In computing the vitamin A value of a diet from standard tables for comparison with the recommended allowance, the vitamin A and carotene values should be added together and the total

¹ Adapted from definitions given in the Report of the Committee on Calorie Requirements, Food and Agriculture Organization of the United Nations (1950).

² Computed from mean annual temperatures of all States based on the mean of the daily maximum and minimum.

regarded as the "vitamin A value". It is not necessary to divide the carotene value by three or another factor, as this has been allowed for in assessing the recommended allowance.

The vitamin A value recommended for infants is assumed to be derived almost entirely from preformed vitamin A.

Thiamine and Niacin.

Thiamine and niacin allowances are computed on the basis of 0.5 milligramme and 5.0 milligrammes per 1000 Calories respectively.

REFERENCES.

Food and Agriculture Organization of the United Nations (1950), "Report of the Committee on Calorie Requirements", Washington.

Food and Nutrition Board, National Research Council (1953), "Recommended Dietary Allowances (Preliminary Draft)", revised 1953.

"Report of the Committee on Nutrition" (1950), British Medical Association, London.

Correspondence.

MEDICAL REGISTRATION IN NEW SOUTH WALES.

SIR: In connexion with the new law requiring all medical practitioners who desire to retain their names on the New South Wales medical register to pay the sum of one guinea as annual roll fee, you may be interested to know that a total of 5500 notices were dispatched to doctors whose names appeared on the 1953 register.

The results have been interesting. At today's date, 3210 payments have been received. As expected, a large number of notices (353) have been returned "unclaimed" from the addresses to which they were sent; 157 more doctors have informed me that they have permanently left the State and will not return, and another 300 have been traced to other States—their addresses never having been advised to the Board. Four hundred notices were sent to vague addresses overseas, and very few of these have apparently reached the doctors concerned.

It will thus be seen that by June 30, when the roll fee became due, it has not been possible to contact all doctors. Publication of this letter in the next issue of your journal will therefore be of considerable value in making known the legal requirement to pay the roll fee promptly.

Yours, etc.,

P. E. COSGRAVE,
Secretary.

New South Wales Medical Board,
52 Bridge Street,
Sydney.
July 1, 1954.

MEDICAL PRACTICE IN AUSTRALIA.

SIR: I draw attention to a letter by Dr. L. R. Mallen, a member of the Council of the World Medical Association, in the *World Medical Journal*, May, 1954, because there are several points that I think require attention by the Federal Council of the British Medical Association.

The first matter that Dr. Mallen takes up is the question of how many doctors we need in Australia, and he says that it is certain that in the near future the profession will be overcrowded and the ratio of doctor-patient will become 1:800 or even less. Sir Hugh Poate has written in like manner on this question. Surely the time has come when the Federal Council should set up a committee to consider all aspects of this problem and publish a report.

Secondly, I think Dr. Mallen stresses the fact that it should be the aim of all medical schools "to train graduates to have a good working knowledge of all branches of medicine—to become good general practitioners". The unfortunate trend to over-specialization by young doctors specializing without having any grounding in general practice is being offset in many English-speaking universities by a period of training in general practice, and by the formation of Colleges of General Practitioners.

The third matter to which I wish to draw attention is the question of the isolated practitioner whose medical help, as Dr. Mallen states, is often twenty miles or more distant—often hundreds of miles—and he will be called upon to do

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED JUNE 26, 1954.¹

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism ..	4(1)	3(3)	2(2)	..	..	..	..	..	9
Amoebiasis ..	..	..	..	..	..	..	..	..	..
Ancylostomiasis ..	..	..	..	..	..	..	1	..	1
Anthrax ..	..	..	..	..	..	..	..	..	..
Bilharziasis ..	..	..	..	..	..	..	..	..	..
Brucellosis ..	..	..	1	..	..	..	..	..	1
Cholera ..	..	1(1)	..	..	..	..	..	..	1
Chorea (St. Vitus) ..	..	..	..	..	..	..	..	..	..
Dengue ..	..	..	..	..	..	..	..	..	..
Diarrhoea (Infantile) ..	2(2)	11(10)	..	..	1(1)	..	1	..	16
Diphtheria ..	15(8)	5(2)	2(1)	..	2(1)	..	..	..	24
Dysentery (Bacillary) ..	..	1(1)	1	..	..	..	..	..	2
Encephalitis ..	..	..	..	..	..	..	..	..	..
Filariasis ..	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice ..	..	..	..	..	..	..	..	..	..
Hydatid ..	..	..	..	..	..	..	..	..	..
Infective Hepatitis ..	37(9)	14(7)	..	..	2(2)	..	..	..	53
Lead Poisoning ..	..	..	..	..	..	..	..	..	..
Leprosy ..	..	..	..	..	2	..	..	..	2
Leptospirosis ..	..	..	7	..	..	..	..	..	7
Malaria ..	..	..	..	..	1(1)	..	..	..	1
Meningococcal Infection ..	2(1)	6(4)	2(1)	..	..	1(1)	..	..	11
Ophthalmia ..	..	..	..	..	..	..	..	..	..
Ornithosis ..	..	..	..	..	..	..	..	..	..
Pseudotuberculosis ..	..	..	..	..	..	..	..	..	..
Plague ..	..	..	..	..	..	..	..	..	..
Pollomyelitis ..	8(1)	14(2)	1(1)	..	5(3)	..	..	..	28
Puerperal Fever ..	..	..	1	..	..	..	..	..	1
Rubella ..	..	9(8)	..	..	3(3)	..	..	..	12
Salmonella Infection ..	..	..	..	..	..	..	..	..	..
Scarlet Fever ..	18(12)	25(17)	10(7)	3(1)	1(1)	3(1)	..	..	59
Smallpox ..	..	..	1	..	..	..	1	..	2
Tetanus ..	..	..	..	..	2	..	..	..	2
Trachoma ..	..	..	..	..	..	..	..	..	..
Trichinosis ..	..	..	..	..	..	..	..	..	..
Tuberculosis ..	30(23)	17(9)	9(6)	8(8)	4(3)	3(2)	2	..	73
Typhoid Fever ..	..	..	1(1)	..	..	..	..	..	1
Typhus (Flea-, Mite- and Tick-borne) ..	1(1)	..	..	..	..	..	..	..	1
Typhus (Louse-borne) ..	..	..	..	..	..	..	..	..	..
Yellow Fever ..	..	..	..	..	..	..	..	..	..

¹ Figures in parentheses are those for the metropolitan area.

emergency surgery or midwifery, or to take his own X rays—in fact, do anything pertaining to medical practice. Emergency surgery and surgery of which the practitioner has had little experience is one of the bugbears that the conscientious practitioner and, even more so, his patients have to put up with in remote centres. Up to the present, the State has given little attention to this important problem, such, for instance, as has been given to the treatment of cancer. In the treatment of cancer, highly qualified experts visit the length and breadth of the land. Could not some system be established whereby surgeons could be on call to give aid to young practitioners, who are faced with problems of great difficulty? In Queensland there are surgeons at various centres who are well qualified to do this work.

Yours, etc.,

E. S. MEYERS,

Acting Honorary Professor of Social
and Tropical Medicine.

University of Queensland Medical School,
Brisbane,
June 30, 1954.

THYROID SYMPOSIUM.

SIR: In the statistical analysis reported by Winkoff (M. J. AUSTRALIA, 1954, 1:859) and Clarke and Aujard (*ibidem*, 891) the following points were not sufficiently stressed:

1. The predicted misclassification rates were: on PBI¹²⁷ alone: 9%; on k_1 (I¹³¹ uptake) alone: 11%; on the "criterion" based on PBI and k_1 : 6%. Both reductions are statistically significant.

2. The probability that the long-run misclassification rate on the criterion would exceed its estimate (namely, 6%) is less than 1%.

Yours, etc.,

F. E. BINET,

Department of Statistics, University
of Melbourne.

D. WINKOFF,

Department of Biochemistry, Univer-
sity of Melbourne.

K. H. CLARKE,

Commonwealth X-Ray and Radium
Laboratory.

Melbourne,
Undated.

Post-Graduate Work.

SEMINARS AT THE ROYAL PRINCE ALFRED HOSPITAL.

SEMINARS open to all members of the medical profession will be held in the Scot Skirving Lecture Theatre, Royal Prince Alfred Hospital, Sydney, on Fridays from 1.15 to 2.15 p.m. during the period July 2 to October 29, 1954. The programme (subject to alteration) will be as follows:

July 2: Thoracic section, "Eosinophilia in Pulmonary Diseases". July 9: Endocrinology and metabolism section, "Some Recent Developments in Thyroid Physiology" (Professor E. B. Astwood). July 16: Endocrinology and metabolism section, "Pituitary Hormones" (Professor E. B. Astwood). July 23: Hematology section, "The Present Position in the Treatment of Leuchemias". July 30: Dermatology section, "The Use of ACTH and Cortisone in Dermatology". August 6: Cardio-vascular section, "Constrictive Pericarditis". August 13: Gastro-enterology section, "Carcinoma of the Colon" (Dr. L. A. Abel). August 20: Neurology section, "The Differential Diagnosis of Posterior Fossa Lesions". August 27: Endocrinology and metabolism section, "Posterior Pituitary Syndromes". September 3: Gastro-enterology section, "Surgical Management of Diaphragmatic Hernia" (Dr. R. Shaw, chest surgeon, Dallas, Texas). September 10: Hematology section, "Agranulocytosis". September 17: Neurology section, "The Treatment of Intractable Pain" (Mr. J. Loewenthal); Sir James Learmonth will open the discussion. September 24: Royal Prince Alfred Medical Officers' Association Reunion; talk by Mr. Rodney Maingot. October 1: No seminar (golf day, Royal Prince Alfred Hospital Medical Officers' Association Reunion). October 8: Gastro-enterology section, "Gastro-enterological Surgery: Present Trends Overseas" (Mr. E. V. Barling). October 15: No seminar. October 22: Endocrinology and metabolism section, "Carcinoma of Thyroid" (Professor R. McWhirter, Edinburgh). October 29: Paediatrics section, "Some Aspects of Convulsions in Childhood".

Corrigendum.

IN the article entitled "The Fasciae of the Breast and Axilla" by E. S. Meyers in the issue of June 26, 1954, Figure IV on page 967 was printed upside down. We offer our apologies to Dr. Meyers for this error.

Deaths.

THE following deaths have been announced:

FOX.—Roy Gerard Fox, on June 28, 1954, at Hawthorn, Victoria.

FOGARTY.—Joseph Patrick Fogarty, on June 28, 1954, at Toorak, Victoria.

Diary for the Month.

JULY 19.—Victorian Branch, B.M.A.: Finance Subcommittee.
JULY 20.—New South Wales Branch, B.M.A.: Medical Politics Committee.
JULY 21.—Western Australian Branch, B.M.A.: General Meeting.
JULY 22.—Victorian Branch, B.M.A. Executive of Branch Council.
JULY 23.—New South Wales Branch, B.M.A.: Clinical Meeting.
JULY 23.—Queensland Branch, B.M.A.: Council Meeting.
JULY 27.—New South Wales Branch, B.M.A.: Ethics Committee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205 Saint George's Terrace, Perth): Norseman Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Tasmania: Part-time specialist appointments for the north-west coast of Tasmania.

Editorial Notices.

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